

FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 2



CHRISTIAN COUNTY, KENTUCKY AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
CHRISTIAN COUNTY UNINCORPORATED AREAS	210277
CROFTON, CITY OF*	210235
HOPKINSVILLE, CITY OF	210055
LAFAYETTE, CITY OF	210361
OAK GROVE, CITY OF	210375
PEMBROKE, CITY OF	210332
*No Special Flood Hazard Areas Identified	



FEMA

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FLOOD INSURANCE STUDY NUMBER
21047CV001B

Version Number 2.3.3.3

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Volume 1

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Little River	03 P

Volume 2

Exhibits

Flood Profiles	<u>Panel</u>
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Lower Branch North Fork Little River Tributary 2	08 P
Middle Branch North Fork Little River	09-11 P
Middle Branch North Fork Little River Tributary 2	12 P
Montgomery Branch	13-14 P
North Fork Little River	15-18 P
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Rock Bridge Branch	23-25 P
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South Fork Little River Tributary 7	51	P
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Published Separately

Flood Insurance Rate Map (FIRM)

FLOOD INSURANCE STUDY REPORT CHRISTIAN COUNTY, KENTUCKY

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60.3, *Criteria for land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal Government. Congress also recognized that most of these floodprone buildings were built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after

the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as “Post-FIRM” buildings.

1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community’s regulations.

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Christian County, Kentucky.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the 8-digit Hydrologic Unit Codes (HUC-8) sub-basins affecting each, are shown in Table 1. The Flood Insurance Rate Map (FIRM) panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

Jurisdictions that have no identified SFHAs as of the effective date of this study are indicated in the table. Changed conditions in these communities (such as urbanization or annexation) or the availability of new scientific or technical data about flood hazards could make it necessary to determine SFHAs in these jurisdictions in the future.

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Christian County (Unincorporated Areas)	210277	05130205, 05130206, 05140205, 05110006	21047C0025C, 21047C0050C ² , 21047C0075C, 21047C0100C, 21047C0125D, 21047C0150C, 21047C0175C, 21047C0200C, 21047C0225D, 21047C0244D, 21047C0245D, 21047C0250D, 21047C0255D, 21047C0260D, 21047C0261D, 21047C0262D, 21047C0263D, 21047C0264D, 21047C0270D, 21047C0290D, 21047C0295D, 21047C0300D, 21047C0325D, 21047C0331D, 21047C0332D, 21047C0333D, 21047C0334D, 21047C0341D, 21047C0342D, 21047C0343D, 21047C0344D, 21047C0350D, 21047C0351D, 21047C0352D, 21047C0353D, 21047C0354D, 21047C0356D, 21047C0357D, 21047C0358D, 21047C0359D, 21047C0361D, 21047C0362D, 21047C0363D, 21047C0364D, 21047C0366D, 21047C0367C, 21047C0370C, 21047C0380D, 21047C0385D, 21047C0386C, 21047C0390C, 21047C0395D ² , 21047C0425D, 21047C0450D, 21047C0452D, 21047C0454D, 21047C0455C ² , 21047C0460D, 21047C0462C, 21047C0464C, 21047C0465C, 21047C0466C, 21047C0467C, 21047C0468C, 21047C0469C, 21047C0500C	
¹ Crofton, City of	210235	05140205, 05110006	21047C0175C	

¹ No Special Flood Hazard Areas Identified

² Panel Not Printed

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Hopkinsville, City of	210055	05130205, 05130206	21047C0244D, 21047C0263D, 21047C0264D, 21047C0331D, 21047C0332D, 21047C0333D, 21047C0334D, 21047C0351D, 21047C0352D, 21047C0353D, 21047C0354D, 21047C0356D, 21047C0358D, 21047C0361D, 21047C0362D, 21047C0363D, 21047C0364D, 21047C0366D, 21047C0367C, 21047C0386C, 21047C0452D, 21047C0454C, 21047C0455C ²	
Lafayette, City of	210361	05130206	21047C0425D	
Oak Grove, City of	210375	05130206	21047C0454C, 21047C0460D, 21047C0462C, 21047C0464C, 21047C0466C, 21047C0467C, 21047C0468C, 21047C0469C, 21047C0500C	
Pembroke, City of	210332	05130206	21047C0386C, 21047C0390C,	

¹ No Special Flood Hazard Areas Identified

² Panel Not Printed

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1% annual chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1% annual chance and 0.2% annual chance floodplains; and 1% annual chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not

involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 31, “Map Repositories,” within this FIS Report.

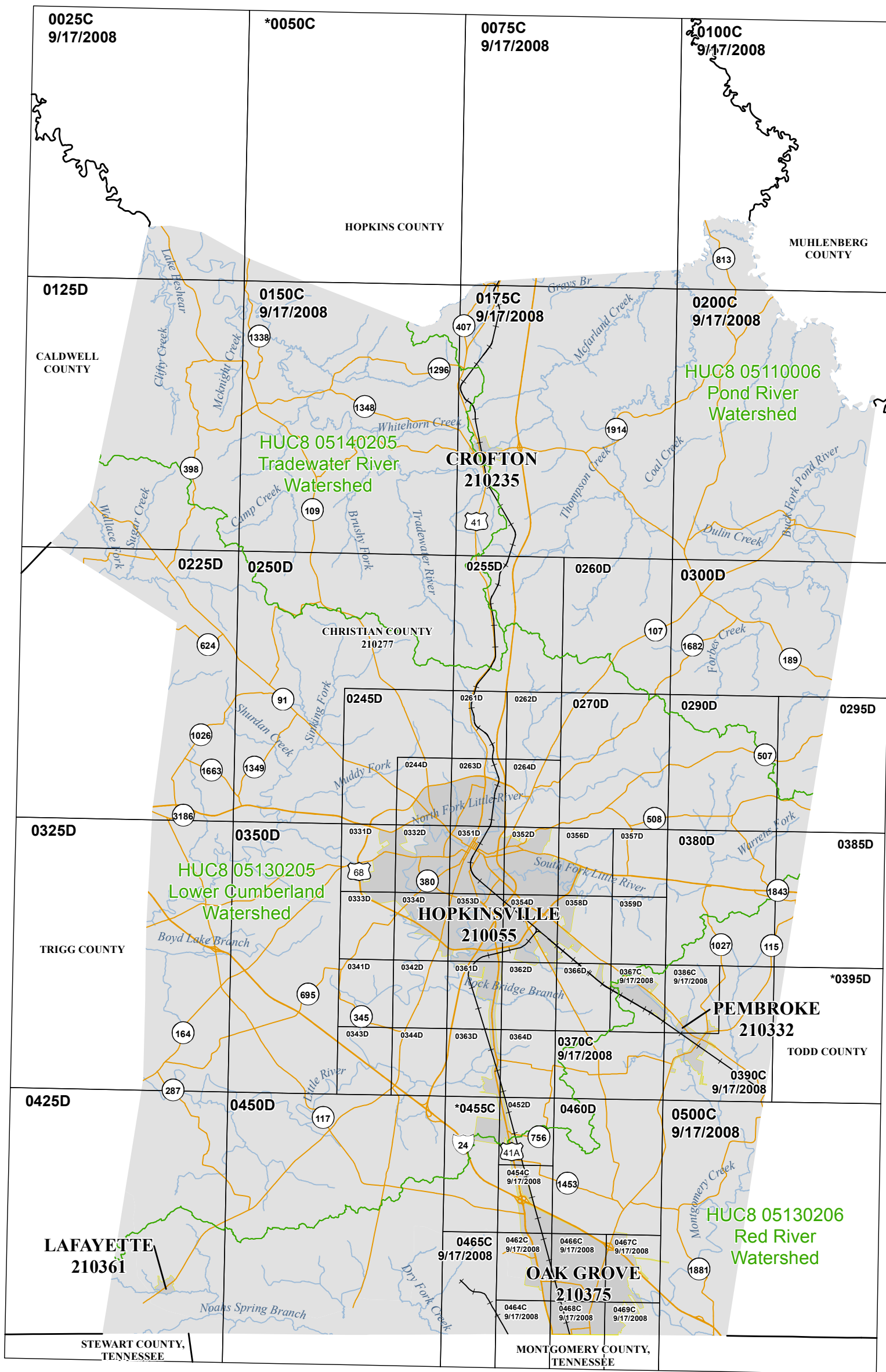
- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

The initial Countywide FIS Report for Christian County became effective on September 17, 2008. Refer to Table 28 for information about subsequent revisions to the FIRMs.

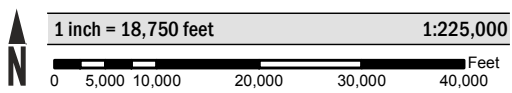
- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at www.fema.gov/online-tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Christian County, and also displays the panel number and effective date for each FIRM panel in the county. Other information shown on the FIRM Index includes community boundaries, flooding sources, watershed boundaries, and United States Geological Survey (USGS) Hydrologic Unit Code – 8 (HUC-8) codes.

Figure 1: FIRM Panel Index



ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before 8/8/8888.



Map Projection:
State Plane Lambert Conformal Conic,
Kentucky Zone 1600; North American Datum 1983



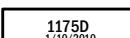


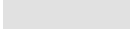
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTP://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

MAP SYMBOLLOGY

INDEX LAYERS

-
-  Highway
 Stream Centerline
 FIRM Panel
 Watershed Boundary
 City, Town
 Christian County

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP INDEX

CHRISTIAN COUNTY, KENTUCKY and Incorporated Areas

PANELS PRINTED:

0025, 0075, 0100, 0125, 0150, 0175, 0200, 0225, 0244, 0245, 0250,
0255, 0260, 0261, 0262, 0263, 0264, 0270, 0290, 0295, 0300, 0325,
0331, 0332, 0333, 0334, 0341, 0342, 0343, 0344, 0350, 0351, 0352,
0353, 0354, 0356, 0357, 0358, 0359, 0361, 0362, 0363, 0364, 0366,
0367, 0370, 0380, 0385, 0386, 0390, 0425, 0450, 0452, 0454, 0460,
0462, 0464, 0465, 0466, 0467, 0468, 0469, 0500



FEMA

MAP NUMBER
21047CIND0B

MAP REVISED
PRELIMINARY 9/30/2016

*PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS

Each FIRM panel may contain specific notes to the user that provide additional information regarding the flood hazard data shown on that map. However, the FIRM panel does not contain enough space to show all the notes that may be relevant in helping to better understand the information on the panel. Figure 2 contains the full list of these notes.

Figure 2: FIRM Notes to Users

<p style="text-align: center;">NOTES TO USERS</p> <p>For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.</p> <p>Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.</p> <p>For community and countywide map dates, refer to Table 28 in this FIS Report.</p> <p>To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.</p> <p><u>PRELIMINARY FIS REPORT:</u> FEMA maintains information about map features, such as street locations and names, in or near designated flood hazard areas. Requests to revise information in or near designated flood hazard areas may be provided to FEMA during the community review period, at the final Consultation Coordination Officer's meeting, or during the statutory 90-day appeal period. Approved requests for changes will be shown on the final printed FIRM.</p>
<p>The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.</p> <p><u>BASE FLOOD ELEVATIONS:</u> For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.</p> <p><u>FLOODWAY INFORMATION:</u> Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.</p>

Figure 2. FIRM Notes to Users

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.

PROJECTION INFORMATION: The projection used in the preparation of the map was State Plane Lambert Conformal Conic, Kentucky Zone 1600. The horizontal datum was North American Datum of 1983 (NAD83). Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

ELEVATION DATUM: Flood elevations on the FIRM are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

*NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242*

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 31 of this FIS Report.

BASE MAP INFORMATION: Base map information shown on the FIRM was provided by the U.S. Geological Survey, National Geodetic Survey, National Atlas, Kentucky Transportation Cabinet (KYTC), Kentucky GeoNet, U.S. Army Corps of Engineers, Federal Emergency Management Agency, and the National Agriculture Imagery Program (NAIP). Ortho imagery was provided by NAIP in 2014, has a 1 meter ground resolution. For information about base maps, refer to Section 6.2 "Base Map" in this FIS Report.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map.

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Figure 2. FIRM Notes to Users

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Christian County, Kentucky, corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 28 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before 8/8/8888.

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

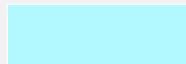
This Notes to Users section was created specifically for Christian County, Kentucky, effective 88/88/8888.

FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk.

Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Christian County.

Figure 3: Map Legend for FIRM

SPECIAL FLOOD HAZARD AREAS: *The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.*



Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)

- Zone A The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
- Zone AE The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.
- Zone AH The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
- Zone AO The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
- Zone AR The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- Zone A99 The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
- Zone V The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
- Zone VE Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.

Figure 3: Map Legend for FIRM





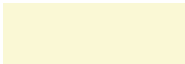

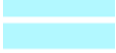







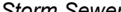




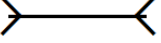

	Regulatory Floodway determined in Zone AE.
OTHER AREAS OF FLOOD HAZARD	
	Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.
	Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.
	Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood. See Notes to Users for important information.
OTHER AREAS	
	Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible
	Unshaded Zone X: Areas determined to be outside the 0.2% annual chance flood hazard
FLOOD HAZARD AND OTHER BOUNDARY LINES	
 (ortho)  (vector)	Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)
	Limit of Study
	Jurisdiction Boundary
	Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet
GENERAL STRUCTURES	
   	Channel, Culvert, Aqueduct, or Storm Sewer
  	Dam, Jetty, Weir
	Levee, Dike, or Floodwall
 	Bridge

Figure 3: Map Legend for FIRM


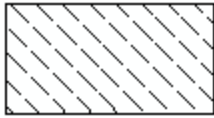

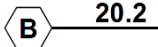
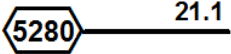
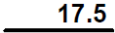
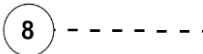











COASTAL BARRIER RESOURCES SYSTEM (CBRS) AND OTHERWISE PROTECTED AREAS (OPA): <i>CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas. See Notes to Users for important information.</i>	
 CBRS AREA 09/30/2009	Coastal Barrier Resources System Area: Labels are shown to clarify where this area shares a boundary with an incorporated area or overlaps with the floodway.
 OTHERWISE PROTECTED AREA 09/30/2009	Otherwise Protected Area
REFERENCE MARKERS	
	River mile Markers
CROSS SECTION & TRANSECT INFORMATION	
	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
	Coastal Transect
	Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.
	Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.
	Base Flood Elevation Line
ZONE AE (EL 16)	Static Base Flood Elevation value (shown under zone label)
ZONE AO (DEPTH 2)	Zone designation with Depth
ZONE AO (DEPTH 2) (VEL 15 FPS)	Zone designation with Depth and Velocity

Figure 3: Map Legend for FIRM

BASE MAP FEATURES	
<u>Missouri Creek</u>	River, Stream or Other Hydrographic Feature
	Interstate Highway
	U.S. Highway
	State Highway
	County Highway
<u>MAPLE LANE</u>	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
 RAILROAD	Railroad
	Horizontal Reference Grid Line
	Horizontal Reference Grid Ticks
	Secondary Grid Crosshairs
Land Grant	Name of Land Grant
7	Section Number
R. 43 W. T. 22 N.	Range, Township Number
⁴² 76 ^{000m} E	Horizontal Reference Grid Coordinates (UTM)
365000 FT	Horizontal Reference Grid Coordinates (State Plane)
80° 16' 52.5"	Corner Coordinates (Latitude, Longitude)

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1% annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2% annual chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and Christian County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its 1% annual chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4-, 2-, 0.2-percent annual chance, etc.) may have also been computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 23), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1% and 0.2% annual chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1% annual chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary is shown on the FIRM. Figure 3, “Map Legend for FIRM”, describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Christian County, KY, respectively.

Table 2, “Flooding Sources Included in this FIS Report,” lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 13. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1% annual chance floodplain corresponds to the SFHAs. The 0.2% annual chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Buck Fork Pond River and Zone A Tributaries	Christian County, Unincorporated Areas	Confluence with West Fork Pond River	1 square mile drainage area of all Zone A streams	05110006	68.59		N	A	12/1/2006
Lake Morris Tributary 2	Christian County, Unincorporated Areas	Confluence with Upper Branch North Fork Little River	0.69 miles upstream of intersection with Woodburn Hay Road	05130205	2.15		N	AE	5/20/2015
Lake Morris Tributary 2.1	Christian County, Unincorporated Areas	Confluence with Lake Morris Tributary 2	0.14 miles upstream of intersection with Woodburn Hay Road	05130205	0.71		N	AE	5/20/2015
Little River	Christian County, Unincorporated Areas	0.05 Miles Upstream of Intersection with Huffman Mill Rd	Confluence of South Fork Little River and North Fork Little River	05130205	4.52		Y	AE	12/1/2006
Little River and Zone A Tributaries	Christian County, Unincorporated Areas	County Boundary	1 square mile drainage area of all Zone A streams	05130205	46.64		N	A	5/20/2015
Lower Branch North Fork Little River	Christian County, Unincorporated Areas	Confluence with Upper Branch North Fork Little River	0.43 miles upstream of confluence with Lower Branch North Fork Little River Tributary 2	05130205	7.85		N	AE	5/20/2015
Lower Branch North Fork Little River Tributary 2	Christian County, Unincorporated Areas	Confluence with Lower Branch North Fork Little River	0.61 miles upstream of confluence with Lower Branch North Fork Little River	05130205	0.60		N	AE	5/20/2015
Middle Branch North Fork Little River	Christian County, Unincorporated Areas	Confluence with Upper Branch North Fork Little River	0.07 miles upstream of confluence with Middle Branch North Fork Little River Tributary 2	05130205	2.89		N	AE	5/20/2015

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Middle Branch North Fork Little River Tributary 2	Christian County, Unincorporated Areas	Confluence with Middle Branch North Fork Little River	1.03 miles upstream of intersection with Antioch Church Road	05130205	1.41		N	AE	5/20/2015
Montgomery Branch	Christian County, Unincorporated Areas	Confluence with Montgomery Branch Tributary	1.83 miles upstream of Confluence with Montgomery Branch Tributary	05130206	6.14		Y	AE	12/1/2006
Montgomery Creek and Zone A Tributaries	Christian County, Unincorporated Areas	County Boundary	1 square mile drainage area of all Zone A streams	05130206	13.97		N	A	12/1/2006
Muddy Fork Little River and Zone A Tributaries	Christian County, Unincorporated Areas	County Boundary	1 square mile drainage area of all Zone A streams	05130205	21.20		N	A	5/20/2015
Noahs Spring Branch and Zone A Tributaries	Christian County, Unincorporated Areas; Lafayette, City of	County Boundary	1 square mile drainage area of all Zone A streams	05130206	31.01		N	A	12/1/2006
North Fork Little River	Christian County, Unincorporated Areas	0.14 Miles downstream of Confluence with Lower Branch North Fork Little River	Confluence of Lower Branch North Fork Little River and Upper Branch North Fork Little River	05130205	0.13		N	A	5/20/2015
North Fork Little River	Christian County, Unincorporated Areas	Confluence with South Fork Little River	0.14 Miles downstream of Confluence with Lower Branch North Fork Little River	05130205	16.06		Y	AE	12/1/2006
North Fork Little River Tributary	Christian County, Unincorporated Areas	Confluence with North Fork Little River	0.25 miles upstream of the intersection with Cox Mill Road	05130205	0.50		Y	AE	12/1/2006

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
North Fork Little River Tributary 3	Christian County, Unincorporated Areas	Confluence with North Fork Little River	0.26 miles upstream of the intersection with Faulkner Road	05130205	1.37		N	AE	5/20/2015
Rock Bridge Branch	Christian County, Unincorporated Areas	Confluence with South Fork Little River	0.67 miles upstream of the intersection with Bradshaw Road	05130206	5.82		Y	AE	12/1/2006
Sanderson Creek	Christian County, Unincorporated Areas	Confluence with North Fork Little River	0.40 miles upstream of the intersection with Eagle Way	05130206	2.53		Y	AE	12/1/2006
Sink Connect 3	Christian County, Unincorporated Areas	Confluence with South Fork Little River	0.57 miles upstream of confluence with South Fork Little River	05130205	0.55		N	AE	5/20/2015
Sinkhole I-24	Christian County, Unincorporated Areas; Oak Grove, City of	*	*	05130206		0.12	N	AE	12/1/2006
Sinkhole Main Sink	Christian County, Unincorporated Areas; Oak Grove, City of	*	*	05130206		0.73	N	AE	12/1/2006
Sinkhole NF	Hopkinsville, City of	*	*	05130205		0.01	N	AE	12/1/2006
Sinkhole North West	Oak Grove, City of	*	*	05130206		0.11	N	AE	12/1/2006
Sinkhole South West	Christian County, Unincorporated Areas; Oak Grove, City of	*	*	05130206		0.04	N	AE	12/1/2006
Sinkholes 1 – 96	Christian County, Unincorporated Areas; Oak Grove, City of	*	*	05130206		0.92	N	AE	12/1/2006

*Data not available

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Sinkholes 1A – 22A	Christian County, Unincorporated Areas; Hopkinsville, City of	*	*	05130205		0.38	N	AE	12/1/2006
Sinking Fork and Zone A Tributaries	Christian County, Unincorporated Areas	County Boundary	1 square mile drainage area of all Zone A streams	05130205	66.75		N	A	5/20/2015
South Fork Little River	Christian County, Unincorporated Areas	Confluence with Little River	0.11 miles upstream of intersection with Dr. Martin Luther King Jr Way	05130205	13.00		Y	AE	5/20/2015
South Fork Little River	Christian County, Unincorporated Areas	Confluence with Little River	0.93 miles upstream of Laytonsville Road	05130205	12.45		Y	AE	5/20/2015
South Fork Little River Tributary	Christian County, Unincorporated Areas	Confluence with South Fork Little River	0.03 miles upstream of intersection with Dr. Martin Luther King Jr Way	05130205	1.18		Y	AE	5/20/2015
South Fork Little River Tributary	Christian County, Unincorporated Areas	Confluence with South Fork Little River	0.35 miles upstream of intersection with Caskey Church Road	05130205	2.14		N	AE	5/20/2015
South Fork Little River Tributary	Christian County, Unincorporated Areas	0.03 miles upstream of intersection with Dr. Martin Luther King Jr Way	0.52 miles downstream of intersection with Bradshaw Road	05130205	1.13		Y	AE	12/1/2006
South Fork Little River Tributary 1.1	Christian County, Unincorporated Areas	Confluence with South Fork Little River Tributary	0.7 miles upstream of the confluence with South Fork Little River Tributary	05130205	0.70		N	AE	5/20/2015

*Data not available

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
South Fork Little River Tributary 3	Christian County, Unincorporated Areas	Confluence with South Fork Little River	2.12 miles upstream of intersection with Russelville Road	05130205	3.10		N	AE	5/20/2015
South Fork Little River Tributary 4	Christian County, Unincorporated Areas	Confluence with South Fork Little River	0.87 miles upstream of confluence with South Fork Little River	05130205	0.86		N	AE	5/20/2015
South Fork Little River Tributary 5	Christian County, Unincorporated Areas	Confluence with South Fork Little River	0.5 miles upstream of confluence with South Fork Little River	05130205	0.49		N	AE	5/20/2015
South Fork Little River Tributary 6.1	Christian County, Unincorporated Areas	Confluence with South Fork Little River	0.12 miles upstream of intersection with Old Edwards Mill Road	05130205	1.11		N	AE	5/20/2015
South Fork Little River Tributary 7	Christian County, Unincorporated Areas	Confluence with South Fork Little River	1.26 miles upstream of intersection with Little River Church Road	05130205	1.75		N	AE	5/20/2015
South Fork Little River Tributary 8	Christian County, Unincorporated Areas	Confluence with South Fork Little River	0.72 miles upstream of the intersection with Russelville Road	5130205	1.12		N	AE	5/20/2015
South Fork Little River Tributary 9	Christian County, Unincorporated Areas	Confluence with South Fork Little River	0.39 miles upstream of confluence with South Fork Little River	05130205	0.39		N	AE	5/20/2015
South Fork Little River Tributary 10	Christian County, Unincorporated Areas	Confluence with South Fork Little River Tributary 10	1.8 miles upstream of intersection with Butler Road	05130205	1.19		N	AE	5/20/2015
South Fork Little River Tributary 10.1	Christian County, Unincorporated Areas	Confluence with South Fork Little River Tributary 10	1.8 miles upstream of intersection with Butler Road	05130205	2.36		N	AE	5/20/2015

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
South Fork Little River Tributary 11	Christian County, Unincorporated Areas	Confluence with South Fork Little River	0.12 miles upstream of intersection with Monkey Norman Road	05130205	0.492079		N	AE	5/20/2015
Tradewater River and Zone A Tributaries	Christian County, Unincorporated Areas	County Boundary	1 square mile drainage area of all Zone A streams	05140205	91.38		N	A	12/1/2006
Upper Branch North Fork Little River	Christian County, Unincorporated Areas	Confluence with North Fork Little River	0.79 miles upstream of intersection with Woodburn Hay Road	05130205	5.53		N	AE	5/20/2015
Warrens Fork	Christian County, Unincorporated Areas	Confluence with South Fork Little River	2.47 miles upstream of the confluence with Warrens Fork Tributary 1	05130205	4.21		N	AE	5/20/2015
West Fork Pond River and Zone A Tributaries	Christian County, Unincorporated Areas	Confluence with Buck Fork Pond River	1 square mile drainage area of all Zone A streams	05110006	70.12		N	A	12/1/2006
West Fork Red River and Zone A Tributaries	Christian County, Unincorporated Areas; Oak Grove, City of	County Boundary	1 square mile drainage area of all Zone A streams	05130206	28.38		N	A	12/1/2006
Westwood Sinkhole	Hopkinsville, City of	*	*	05130205		0.02	N	AE	1/31/2014
White Creek	Christian County, Unincorporated Areas	0.03 miles upstream of intersection with Madisonville Road at highway mile marker 15.34	0.03 miles upstream of intersection with Madisonville Road at highway mile marker 17.58	05130205	3.54		Y	AE	5/20/2015

*Data not available

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
White Creek Tributary 1	Christian County, Unincorporated Areas	Confluence with White Creek	1.93 miles upstream of the confluence with White Creek	05130205	1.94		N	AE	5/20/2015
Zone A Sinkholes	Christian County, Unincorporated Areas; Hopkinsville, City of	*	*	05130205		0.22	N	A	12/1/2006

*Data not available

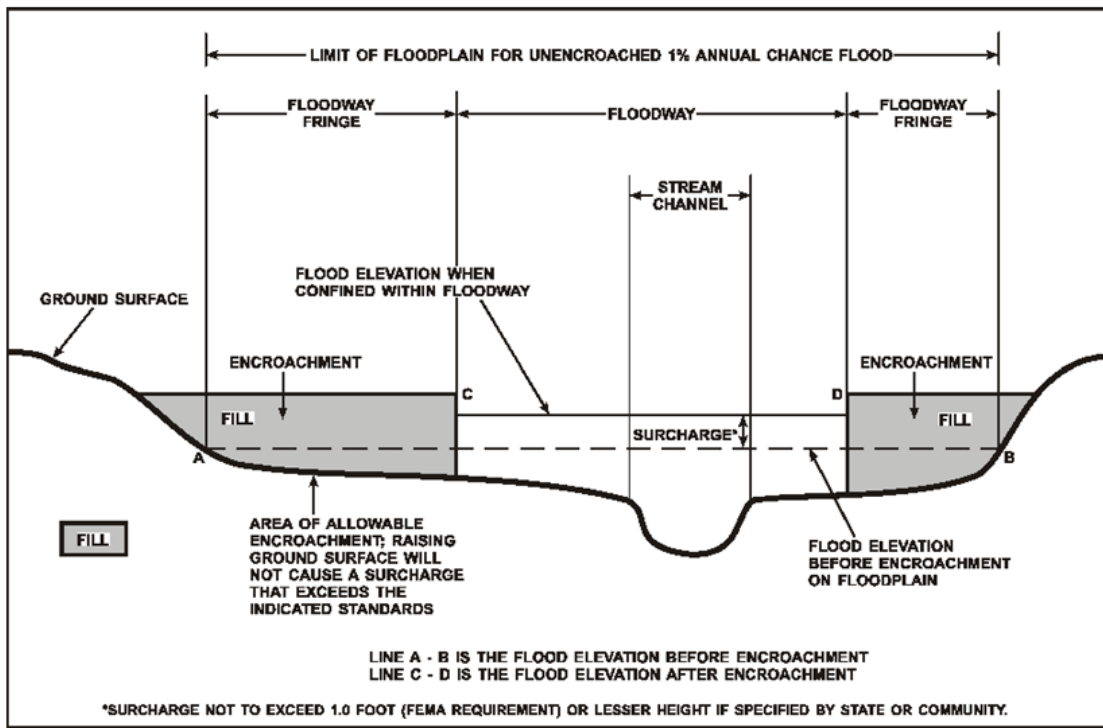
2.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard.

For purposes of the NFIP, a floodway is used as a tool to assist local communities in balancing floodplain development against increasing flood hazard. With this approach, the area of the 1% annual chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1% annual chance flood. The floodway fringe is the area between the floodway and the 1% annual chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water-surface elevation of the 1% annual chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. Regulations for Kentucky require communities in Christian County to limit increases caused by encroachment to 1.0 foot and several communities have adopted additional restrictions. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 24, "Floodway Data."

All floodways that were developed for this FIS project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 1% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The Base Flood Elevation (BFE) is the elevation of the 1% annual chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. BFEs are primarily intended for flood

insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM.

2.4 Non-Encroachment Zones

Some States and communities use non-encroachment zones to manage floodplain development. While not a FEMA designated floodway, the non-encroachment zone represents that area around the stream that should be reserved to convey the 1% annual chance flood event.

Regulations for Kentucky require communities in Christian County to limit increases caused by encroachment to 1 foot and several communities have adopted additional restrictions for non-encroachment areas.

Non-encroachment determinations may be delineated where it is not possible to delineate floodways because specific channel profiles with bridge and culvert geometry were not developed. Any non-encroachment determinations for this FIS project have been tabulated for selected cross sections and are shown in Table 25, “Flood Hazard and Non-Encroachment Data for Selected Streams.”

2.5 Coastal Flood Hazard Areas

This section is not applicable to this FIS project.

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to this FIS project.

Figure 5: Wave Runup Transect Schematic

[Not Applicable to this FIS Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable to this FIS project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to this FIS project.

Figure 6: Coastal Transect Schematic

[Not Applicable to this FIS Project]

2.5.4 Limit of Moderate Wave Action

This section is not applicable to this FIS project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Figure 3, “Map Legend for FIRM.” Flood insurance zone designations are assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in the unincorporated and incorporated areas of Christian County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Christian County (Unincorporated Areas)	A, AE, X
Crofton, City of	X
Hopkinsville, City of	A, AE, X
Lafayette, City of	A, X
Oak Grove, City of	A, AE, X
Pembroke, City of	A, AE, X

3.2 Coastal Barrier Resources System

This section is not applicable to this FIS project.

Table 4: Coastal Barrier Resources System Information

[Not Applicable to this FIS Project]

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 5 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 5: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Lower Cumberland	05130205	Cumberland River	Largest watershed within Christian County, encompassing most of the center and west side of the county	2,334
Pond River	05110006	Pond River	Northeast portion of Christian County	797
Red River	05130206	Red River	Southeast portion of Christian County	1,454
Tradewater River	05140205	Tradewater River	Northwest corner of Christian County	943

4.2 Principal Flood Problems

Table 6 contains a description of the principal flood problems that have been noted for Christian County by flooding source.

Table 6: Principal Flood Problems

Flooding Source	Description of Flood Problems
North and South Forks of the Little River, Sanderson Creek, and sinkhole areas.	Low-lying areas of Hopkinsville are subject to periodic flooding. The most severe flooding occurs during the spring months due to frequent rainfalls, causing the ground to be saturated.
North Fork Little River	Flooding affects several developed areas in Hopkinsville, including the Westwood, Indian Hills, Country Meadow, and Fairlawn Park Subdivisions. Inadequate drainage ditches result in flooding at Mill Court, Mill View, Millbrook Drive, and Colonial Terrace.
South Fork Little River	The Hunting Creek Subdivision and adjacent properties experience severe flooding partly because of several large sinkholes. These also flood houses in the Remington Road area and along the north side of Quail Ridge.
South Fork Little River	In the area of the Old Clarksville Pike and Fort Campbell Boulevard (U.S. 41A) buildings and lots are frequently flooded, as well as residences on the southwest side of Mohawk Trail south to Shawnee Drive. Industries along Industrial Drive, Woodmill Road, and Fort Campbell Boulevard are subject to damage to buildings, parking lots, etc.

Table 7 contains information about historic flood elevations in the communities within Christian County.

Table 7: Historic Flooding Elevations
[Not Applicable to this FIS Project]

4.3 Non-Levee Flood Protection Measures

Table 8 contains information about non-levee flood protection measures within Christian County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 8: Non-Levee Flood Protection Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
North Fork of the Little River	N/A	Floodwater retarding structures	Upstream of Hopkinsville	Four floodwater retarding structures provide about 4,934 acre-feet of floodwater storage. These structures provide a significant reduction in flood stages for the downtown area of Hopkinsville traversed by the North Fork of the Little River.

4.4 Levees

This section is not applicable to this FIS project.

Table 9: Levees

[Not Applicable to this FIS Project]

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 27, “Incorporated Letters of Map Change”, which include

Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, “FIRM Revisions.”

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 13. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 10. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7 for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 11. Stream gage information is provided in Table 12.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Lake Morris Tributary 2	At confluence with Upper Branch North Fork Little River	5.02	1,652	2,152	2,559	2,967	4,042
Lake Morris Tributary 2	Approximately 0.51 miles upstream of confluence with Upper Branch North Fork Little River	3.95	1,426	1,860	2,211	2,564	3,493
Lake Morris Tributary 2	Approximately 0.44 miles downstream of intersection with Woodburn Hay Road	3.27	1,269	1,656	1,969	2,283	3,110
Lake Morris Tributary 2	Approximately 0.33 miles downstream of intersection with Woodburn Hay Road	2.13	977	1,277	1,518	1,761	2,398
Lake Morris Tributary 2	Approximately 106 feet upstream of intersection with Woodburn Hay Road	2.07	960	1,255	1,492	1,731	2,356
Lake Morris Tributary 2	Approximately 0.13 miles upstream of intersection with Woodburn Hay Road	1.40	753	986	1,172	1,360	1,851
Lake Morris Tributary 2	Approximately 0.44 miles upstream of intersection with Woodburn Hay Road	1.28	713	933	1,109	1,287	1,752
Lake Morris Tributary 2	Approximately 0.54 miles upstream of intersection with Woodburn Hay Road	0.97	603	789	938	1,090	1,482
Lake Morris Tributary 2	Approximately 0.64 miles upstream of intersection with Woodburn Hay Road	0.95	593	777	924	1,073	1,459
Lake Morris Tributary 2.1	Just upstream of confluence with Lake Morris Tributary 2	1.09	647	848	1,008	1,170	1,592

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Lake Morris Tributary 2.1	Approximately 0.11 miles upstream of intersection with Woodburn Hay Road	0.86	560	733	872	1,013	1,377
Little River	Approximately 800 feet downstream of the confluence of North Fork and South Fork Little River	125.70	11,620	*	18,540	21,990	31,500
Lower Branch North Fork Little River**	Just upstream of confluence with Upper Branch North Fork Little River	11.11	1,074	1,403	1,668	1,935	2,634
Lower Branch North Fork Little River	At Lake Boxley Dam	9.63	2,462	3,202	3,807	4,410	6,013
Lower Branch North Fork Little River	Approximately 1.77 miles upstream of intersection with Greenville Road	8.78	2,325	3,025	3,597	4,167	5,681
Lower Branch North Fork Little River	Approximately 0.71 miles downstream of intersection with Cumbee Road	6.86	1,999	2,602	3,094	3,586	4,887
Lower Branch North Fork Little River	Approximately 0.36 miles downstream of intersection with Cumbee Road	5.31	1,710	2,227	2,649	3,070	4,183
Lower Branch North Fork Little River	Approximately 0.62 miles upstream of intersection with Cumbee Road	4.09	1,457	1,899	2,259	2,619	3,567
Lower Branch North Fork Little River	Approximately 0.80 miles upstream of intersection with Pilot Rock Road	3.47	1,316	1,717	2,042	2,368	3,225
Lower Branch North Fork Little River	Approximately 1.07 miles upstream of intersection with Pilot Rock Road	2.66	1,119	1,460	1,737	2,014	2,743
Lower Branch North Fork Little River	Approximately 0.24 miles upstream of intersection with Pilot Rock Road	2.49	1,074	1,403	1,668	1,935	2,634
Lower Branch North Fork Little River	Just upstream of confluence of Lower Branch North Fork Little River Tributary 2	1.12	658	861	1,024	1,188	1,617

*Data not available.

**Dam regulation affects discharge

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Lower Branch North Fork Little River	Approximately 0.42 miles upstream of confluence of Lower Branch North Fork Little River Tributary 2	0.99	611	800	951	1,104	1,502
Lower Branch North Fork Little River Tributary 2	Just upstream of confluence with Lower Branch North Fork Little River	1.16	674	882	1,049	1,218	1,657
Lower Branch North Fork Little River Tributary 2	Approximately 0.56 miles upstream of confluence with Lower Branch North Fork Little River	0.99	610	799	950	1,103	1,501
Middle Branch North Fork Little River**	Just upstream of confluence with Upper Branch North Fork Little River	6.81	723	947	1,126	1,306	1,778
Middle Branch North Fork Little River	At Lake Tandy Dam	6.20	1,879	2,447	2,910	3,372	4,596
Middle Branch North Fork Little River	Approximately 0.32 miles downstream of intersection with Antioch Church Road	4.71	1,588	2,070	2,462	2,854	3,888
Middle Branch North Fork Little River	Approximately 0.20 miles downstream of intersection with Antioch Church Road	3.30	1,276	1,665	1,980	2,296	3,127
Middle Branch North Fork Little River	Approximately 0.11 miles downstream of confluence of Middle Branch North Fork Little River Tributary 2	2.93	1,186	1,548	1,841	2,135	2,907
Middle Branch North Fork Little River	Just upstream of confluence of Middle Branch North Fork Little River Tributary 2	0.72	500	656	780	906	1,232
Middle Branch North Fork Little River Tributary 2	Just upstream of confluence with Middle Branch North Fork Little River	2.18	990	1,293	1,538	1,784	2,429

**Dam regulation affects discharge

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Middle Branch North Fork Little River Tributary 2	Approximately 0.47 miles upstream of intersection with Antioch Church Road	1.64	830	1,086	1,291	1,498	2,039
Middle Branch North Fork Little River Tributary 2	Approximately 1.0 mile upstream of intersection with Antioch Church Road	1.37	746	976	1,161	1,347	1,834
Montgomery Branch	Just downstream of Salubria Springs Rd.	2.10	550	*	1,515	1,666	2,182
Montgomery Branch	1500 feet downstream of Frank Yost Lane	1.00	276	*	380	835	1,093
North Fork Little River	Approximately 7600 feet downstream of Eagle Way (US-68B)	53.50	3,930	*	6,410	7,380	10,270
North Fork Little River	180 feet upstream of Cox Mill Road (KY-695)	50.20	4,290	*	6,750	7,670	10,340
North Fork Little River	180 feet upstream of Canton Pike (KY-272)	46.70	4,230	*	6,400	7,270	9,650
North Fork Little River	1300 feet downstream of North Drive (KY-1007)	43.40	3,680	*	5,650	6,390	8,370
North Fork Little River	150 feet upstream of West 7th Street	38.70	3,300	*	5,070	5,700	7,840
North Fork Little River	150 feet downstream of Confluence with White Creek	36.90	2,700	*	4,130	4,630	6,390
North Fork Little River	Approximately 1500 feet downstream of KY-1682	27.40	1,380	*	2,120	2,430	3,590
North Fork Little River Tributary	1300 feet upstream of Cox Mill Rd (KY-695)	1.00	337	*	532	612	860
North Fork Little River Tributary 3	Just upstream of confluence with North Fork Little River	0.82	546	715	850	987	1,342
North Fork Little River Tributary 3	Approximately 385 feet upstream of intersection with Windsor Drive	0.67	479	628	747	867	1,180

*Data not available.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
North Fork Little River Tributary 3	Approximately 37 feet upstream of intersection with Country Club Lane	0.44	373	489	582	676	919
North Fork Little River Tributary 3	Approximately 0.11 miles upstream of intersection with Country Club Lane	0.43	364	478	568	660	898
North Fork Little River Tributary 3	Approximately 438 feet upstream of intersection with Faulkner Drive	0.29	287	377	448	521	707
Rock Bridge Branch	760 feet above confluence with North Fork Little River	10.10	1,289	*	2,021	2,314	3,269
Rock Bridge Branch	260 feet downstream of Fort Campbell Blvd (US-41A)	7.50	988	*	1,550	1,774	2,506
Rock Bridge Branch	3100 feet downstream of John Rivers Road	4.20	571	*	896	1,029	1,449
Rock Bridge Branch	3500 feet upstream of Bradshaw Road	2.20	279	*	437	501	707
Sanderson Creek	1300 feet upstream of West 7th Street	3.70	665	*	1,047	1,205	1,675
Sanderson Creek	1500 feet downstream of Academy Drive	2.40	538	*	848	975	1,356
Sanderson Creek	500 feet downstream of Academy Drive	2.20	420	*	661	761	1,058
Sanderson Creek	2200 feet upstream of KY-1682	1.30	326	*	513	591	821
Sink Connect 3	Just upstream of confluence with South Fork Little River	0.18	217	286	340	395	537
Sink Connect 3	Approximately 0.27 miles upstream of confluence with South Fork Little River	0.12	167	220	261	304	412
Sink Connect 3	Approximately 0.50 miles upstream of confluence with South Fork Little River	0.05	98	130	154	179	243
South Fork Little River	400 feet downstream of Confluence with Rock Bridge Branch	66.40	7,450	*	11,770	14,020	20,080
South Fork Little River	2800 feet downstream of Eagle Way (US-68)	54.80	6,400	*	10,100	12,000	17,100
South Fork Little River	270 feet upstream of Fort Campbell Blvd (US-41A)	46.10	5,800	*	9,070	10,770	15,230

*Data not available.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
South Fork Little River	480 feet upstream of Edward T Breathitt Pkwy	43.90	5,660	*	9,000	10,490	14,650
South Fork Little River	Approximately 0.11 miles downstream of intersection with Dr. Martin Luther King Jr. Way	36.11	5,057	6,623	7,917	9,249	12,909
South Fork Little River	Approximately 450 feet upstream of confluence of South Fork Little River Tributary 4	34.60	4,963	6,494	7,759	9,058	12,618
South Fork Little River	Approximately 158 feet upstream of confluence of South Fork Little River Tributary 7	26.42	4,436	5,772	6,875	7,982	10,972
South Fork Little River	Approximately 0.41 miles upstream of intersection with Little River Church Road	21.24	3,996	5,185	6,166	7,137	9,739
South Fork Little River	Approximately 0.10 miles downstream stream of confluence of Warrens Fork	16.22	3,388	4,399	5,231	6,057	8,262
South Fork Little River	Just upstream of confluence of Warrens Fork	9.83	2,492	3,241	3,854	4,464	6,087
South Fork Little River	Approximately 476 feet downstream stream of confluence of South Fork Little River Tributary 10	9.39	2,423	3,151	3,747	4,341	5,919
South Fork Little River	Just upstream of confluence of South Fork Little River Tributary 10	4.81	1,608	2,096	2,492	2,889	3,936
South Fork Little River	Approximately 400 feet downstream of intersection with Butler Road	4.04	1,445	1,885	2,241	2,598	3,539
South Fork Little River	Approximately 0.15 miles upstream of intersection with Butler Road	3.09	1,226	1,601	1,903	2,207	3,006
South Fork Little River	Approximately 330 feet downstream of intersection with Laytonsville Road	2.49	1,075	1,404	1,669	1,936	2,636

*Data not available.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
South Fork Little River	Approximately 225 feet upstream of intersection with Laytonsville Road	1.25	702	919	1,093	1,269	1,726
South Fork Little River	Approximately 0.91 miles upstream of intersection with Laytonsville Road	0.95	595	779	926	1,075	1,463
South Fork Little River Tributary	Just upstream of confluence with South Fork Little River	6.04	1,690	2,212	2,634	3,021	4,213
South Fork Little River Tributary	Approximately 75 feet upstream of intersection with Fort Campbell Boulevard	5.16	1,481	1,943	2,315	2,644	3,722
South Fork Little River Tributary	Just downstream of Dr. Martin Luther King Jr. Way	4.20	1,254	*	1,967	2,235	3,182
South Fork Little River Tributary	2500 feet downstream of Harry Berry Lane	2.60	268	*	446	517	777
South Fork Little River Tributary	750 feet upstream of Harry Berry Drive	2.10	195	*	303	354	546
South Fork Little River Tributary	Approximately 0.21 miles downstream of intersection with Casky Road	1.37	480	628	746	867	1,203
South Fork Little River Tributary	Approximately 450 feet downstream of intersection with Casky Lane	1.17	480	628	746	867	1,203
South Fork Little River Tributary	Approximately 0.32 miles upstream of intersection with Casky Lane	1.00	480	628	746	867	1,203
South Fork Little River Tributary 3	Just upstream of confluence with South Fork Little River	3.59	1,003	1,346	1,629	1,920	2,680
South Fork Little River Tributary 3	Approximately 0.30 miles upstream of intersection with US-68	3.24	872	1,180	1,436	1,701	2,391
South Fork Little River Tributary 3	Approximately 0.41 miles upstream of intersection with US-68	2.37	710	935	1,118	1,326	1,877
South Fork Little River Tributary 3	Approximately 0.83 miles upstream of intersection with US-68	1.92	710	935	1,118	1,307	1,823

*Data not available.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
South Fork Little River Tributary 3	Approximately 1.61 miles upstream of intersection with US-68	1.46	710	935	1,118	1,303	1,786
South Fork Little River Tributary 3	Approximately 1.97 miles upstream of intersection with US-68	1.17	676	884	1,052	1,221	1,661
South Fork Little River Tributary 3	Approximately 2.10 miles upstream of intersection with US-68	0.84	553	725	862	1,001	1,361
South Fork Little River Tributary 4	Just upstream of confluence with South Fork Little River	1.24	701	918	1,091	1,267	1,724
South Fork Little River Tributary 4	Approximately 150 feet downstream of intersection with Russellville Road	0.96	597	782	930	1,080	1,469
South Fork Little River Tributary 5	Just upstream of confluence with South Fork Little River	1.78	874	1,142	1,358	1,576	2,145
South Fork Little River Tributary 5	Approximately 0.45 miles upstream of confluence with South Fork Little River	1.45	770	1,007	1,198	1,390	1,892
South Fork Little River Tributary 6.1	Just upstream of confluence with South Fork Little River	2.49	1,075	1,404	1,669	1,936	2,636
South Fork Little River Tributary 6.1	Approximately 390 feet upstream of intersection with Old Edwards Mill Road	2.01	941	1,230	1,463	1,697	2,310
South Fork Little River Tributary 7	Just upstream of confluence with South Fork Little River	1.76	869	1,136	1,350	1,567	2,133
South Fork Little River Tributary 7	Approximately 0.43 miles upstream of confluence with South Fork Little River	1.58	813	1,063	1,264	1,467	1,997
South Fork Little River Tributary 7	Approximately 0.28 miles upstream of intersection with Little River Church Road	1.22	693	907	1,079	1,252	1,704
South Fork Little River Tributary 7	Approximately 0.44 miles upstream of intersection with Little River Church Road	0.93	588	770	916	1,064	1,447
South Fork Little River Tributary 9	Just upstream of confluence with South Fork Little River	1.08	643	842	1,002	1,163	1,582

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
South Fork Little River Tributary 9	Approximately 0.34 miles upstream of confluence with South Fork Little River	0.94	593	777	923	1,072	1,458
South Fork Little River Tributary 10	Just upstream of confluence with South Fork Little River	4.52	1,548	2,018	2,400	2,782	3,790
South Fork Little River Tributary 10	Approximately 0.22 miles upstream of confluence with South Fork Little River	4.50	1,544	2,013	2,393	2,775	3,780
South Fork Little River Tributary 10	Just upstream of confluence of South Fork Little River Tributary 10.1	1.88	904	1,181	1,404	1,630	2,218
South Fork Little River Tributary 10	Approximately 350 feet upstream of confluence of South Fork Little River Tributary 10.1	1.88	903	1,180	1,403	1,628	2,217
South Fork Little River Tributary 10	Approximately 0.26 miles upstream of confluence of South Fork Little River Tributary 10.1	1.35	739	966	1,149	1,334	1,815
South Fork Little River Tributary 10	Approximately 0.27 miles upstream of intersection with Butler Road	1.13	661	865	1,028	1,194	1,624
South Fork Little River Tributary 10.1	Just upstream of confluence with South Fork Little River Tributary 10	2.54	1,087	1,419	1,688	1,958	2,666
South Fork Little River Tributary 10.1	Approximately 0.43 miles upstream of intersection with Butler Road	2.07	959	1,253	1,490	1,729	2,353
South Fork Little River Tributary 10.1	Approximately 1.36 miles upstream of intersection with Butler Road	1.58	812	1,062	1,263	1,466	1,995
South Fork Little River Tributary 10.1	Approximately 1.47 miles upstream of intersection with Butler Road	1.13	660	864	1,027	1,193	1,623
South Fork Little River Tributary 10.1	Approximately 1.54 miles upstream of intersection with Butler Road	1.12	658	861	1,024	1,188	1,617
South Fork Little River Tributary 10.1	Approximately 1.64 miles upstream of intersection with Butler Road	0.72	500	656	779	905	1,231
South Fork Little River Tributary 10.1	Approximately 1.77 miles upstream of intersection with Butler Road	0.70	494	647	770	894	1,216

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
South Fork Little River Tributary 11	Just upstream of confluence with South Fork Little River	1.23	697	912	1,084	1,258	1,712
South Fork Little River Tributary 11	Approximately 500 feet upstream of intersection with Monkey Norman Road	1.10	653	854	1,016	1,179	1,604
Upper Branch North Fork Little River	Just upstream of confluence of Lower Branch North Fork Little River	16.25	1,209	1,578	1,872	2,165	3,014
Upper Branch North Fork Little River	Approximately 0.11 miles downstream of confluence of Middle Branch North Fork Little River	15.08	1,002	1,309	1,554	1,799	2,486
Upper Branch North Fork Little River**	Just upstream of confluence of Middle Branch North Fork Little River	8.25	589	772	917	1,065	1,449
Upper Branch North Fork Little River	At Lake Morris Dam	7.45	2,102	2,736	3,254	3,770	5,139
Upper Branch North Fork Little River	Just upstream of confluence of Lake Morris Tributary 2	2.24	1,008	1,316	1,565	1,816	2,472
Upper Branch North Fork Little River	Approximately 0.33 miles upstream of confluence of Lake Morris Tributary 2	2.10	967	1,263	1,502	1,743	2,372
Upper Branch North Fork Little River	Approximately 0.31 miles downstream of intersection with Woodburn Hay Road	1.60	819	1,070	1,273	1,477	2,010
Upper Branch North Fork Little River	Approximately 0.16 miles upstream of intersection with Woodburn Hay Road	1.24	700	917	1,090	1,265	1,721
Upper Branch North Fork Little River	Approximately 0.76 miles upstream of intersection with Woodburn Hay Road	0.95	596	780	927	1,077	1,465
Warrens Fork	Just upstream of confluence with South Fork Little River	6.38	1,912	2,489	2,960	3,430	4,675
Warrens Fork	Approximately 0.29 miles upstream of intersection with Vaughns Grove-Little River Road	5.75	1,794	2,336	2,778	3,220	4,388

**Dam regulation affects discharge

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Warrens Fork	Approximately 335 feet upstream of intersection with Vaughns Grove-Fairview Road	4.39	1,520	1,982	2,356	2,732	3,722
Warrens Fork	Approximately 0.54 miles upstream of intersection with Vaughns Grove-Fairview Road	4.00	1,437	1,874	2,228	2,584	3,520
Warrens Fork	Approximately 1.17 miles upstream of intersection with Vaughns Grove-Fairview Road	3.11	1,232	1,608	1,912	2,217	3,020
Warrens Fork	Approximately 1.52 miles upstream of intersection with Vaughns Grove-Fairview Road	2.70	1,130	1,475	1,754	2,034	2,770
Warrens Fork	Approximately 1.63 miles upstream of intersection with Vaughns Grove-Fairview Road	1.85	897	1,172	1,393	1,617	2,201
Warrens Fork	Approximately 2.48 miles upstream of intersection with Vaughns Grove-Fairview Road	1.48	781	1,021	1,215	1,410	1,918
White Creek	2200 feet upstream of KY-1682	7.90	669	*	1,023	1,142	1,581
White Creek	170 feet upstream of KY Madisonville Road (US-41)	7.20	594	*	909	1,015	1,405
White Creek	Approximately 211 feet upstream of intersection with Madisonville Road	6.56	631	817	969	1,090	1,504
White Creek	Approximately 0.10 miles downstream of confluence of White Creek Tributary 1	5.59	631	817	969	1,090	1,504
White Creek	Just upstream confluence of White Creek Tributary 1	1.99	631	817	969	1,090	1,504
White Creek	Approximately 0.25 miles upstream of intersection with Madisonville Road	1.54	631	817	969	1,090	1,504

*Data not available.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
White Creek	Approximately 470 feet downstream of intersection with Louisville & Nashville Railroad	1.19	631	817	969	1,090	1,504
White Creek	At intersection with Louisville & Nashville Railroad	0.36	329	432	514	597	812
White Creek	Approximately 0.52 miles upstream of intersection with Madisonville Road	0.20	232	305	363	422	573
White Creek	Approximately 0.91 miles upstream of intersection with Madisonville Road	0.10	150	198	236	274	372
White Creek Tributary 1	Just upstream of confluence with White Creek	3.55	292	384	457	531	722
White Creek Tributary 1**	Approximately 0.28 miles upstream of confluence with White Creek	3.46	241	317	377	438	596
White Creek Tributary 1	At Lake Blythe Dam	3.31	1,280	1,670	1,985	2,302	3,136
White Creek Tributary 1	Approximately 0.84 miles upstream of confluence with White Creek	2.64	1,114	1,454	1,729	2,006	2,731
White Creek Tributary 1	Approximately 1.35 miles upstream of confluence with White Creek	2.10	969	1,266	1,505	1,746	2,377
White Creek Tributary 1	Approximately 1.46 miles upstream of confluence with White Creek	1.44	769	1,006	1,196	1,388	1,889
White Creek Tributary 1	Approximately 1.86 miles upstream of confluence with White Creek	1.30	720	942	1,121	1,301	1,770

**Dam regulation affects discharge

Figure 7: Frequency Discharge-Drainage Area Curves

[Not Applicable to this FIS Project]

Table 11: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Lake Blythe	Christian County, Unincorporated Areas	589.1	591.0	592.6	594.1	597.7
Lake Boxley	Christian County, Unincorporated Areas	569.5	570.7	571.4	572.1	573.5
Lake Morris	Christian County, Unincorporated Areas	585.2	586.7	588.0	589.2	592.2
Lake Tandy	Christian County, Unincorporated Areas	577.5	578.5	579.1	579.6	580.7
Sinkhole 1	Oak Grove, City of	*	*	*	552	*
Sinkhole 1A	Hopkinsville, City of	*	*	*	567.9	*
Sinkhole 2	Oak Grove, City of	*	*	*	546	*
Sinkhole 2A	Christian County, Unincorporated Areas	*	*	*	555.5	*
Sinkhole 3	Oak Grove, City of	*	*	*	543	*
Sinkhole 3A	Christian County, Unincorporated Areas	*	*	*	530.0	*
Sinkhole 4	Oak Grove, City of	*	*	*	548	*
Sinkhole 4A	Christian County, Unincorporated Areas	*	*	*	537.4	*
Sinkhole 5	Oak Grove, City of	*	*	*	543	*
Sinkhole 5A	Christian County, Unincorporated Areas	*	*	*	541.7	*
Sinkhole 6	Oak Grove, City of	*	*	*	549	*
Sinkhole 6A	Christian County, Unincorporated Areas; Hopkinsville, City of	*	*	*	556.9	*
Sinkhole 7	Oak Grove, City of	*	*	*	554	*
Sinkhole 7A	Christian County, Unincorporated Areas	*	*	*	562.6	*
Sinkhole 8	Oak Grove, City of	*	*	*	553	*
Sinkhole 8A	Christian County, Unincorporated Areas	*	*	*	562.7	*
Sinkhole 9	Oak Grove, City of	*	*	*	547	*
Sinkhole 9A	Hopkinsville, City of	*	*	*	536.8	*

*Not calculated for this Flood Risk Project

Table 11: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Sinkhole 10	Oak Grove, City of	*	*	*	548	*
Sinkhole 10A	Hopkinsville, City of	*	*	*	544.6	*
Sinkhole 11	Oak Grove, City of	*	*	*	548	*
Sinkhole 11A	Hopkinsville, City of	*	*	*	548.0	*
Sinkhole 12	Oak Grove, City of	*	*	*	545	*
Sinkhole 12A	Hopkinsville, City of	*	*	*	540.3	*
Sinkhole 13	Oak Grove, City of	*	*	*	544	*
Sinkhole 13A	Hopkinsville, City of	*	*	*	535.4	*
Sinkhole 14	Oak Grove, City of	*	*	*	546	*
Sinkhole 14A	Hopkinsville, City of	*	*	*	539.0	*
Sinkhole 15	Oak Grove, City of	*	*	*	546	*
Sinkhole 15A	Hopkinsville, City of	*	*	*	543.5	*
Sinkhole 16	Oak Grove, City of	*	*	*	544	*
Sinkhole 16A	Hopkinsville, City of	*	*	*	554.5	*
Sinkhole 17	Oak Grove, City of	*	*	*	542	*
Sinkhole 18	Oak Grove, City of	*	*	*	540	*
Sinkhole 18A	Hopkinsville, City of	*	*	*	522.5	*
Sinkhole 19	Oak Grove, City of	*	*	*	535	*
Sinkhole 19A	Hopkinsville, City of	*	*	*	519.5	*
Sinkhole 20	Oak Grove, City of	*	*	*	539	*
Sinkhole 20A	Hopkinsville, City of	*	*	*	522.0	*
Sinkhole 21	Oak Grove, City of	*	*	*	534	*
Sinkhole 21A	Christian County, Unincorporated Areas; Hopkinsville, City of	*	*	*	536.4	*
Sinkhole 22	Oak Grove, City of	*	*	*	533	*
Sinkhole 22A	Christian County, Unincorporated Areas	*	*	*	534.4	*
Sinkhole 23	Oak Grove, City of	*	*	*	540	*
Sinkhole 24	Oak Grove, City of	*	*	*	558	*
Sinkhole 25	Oak Grove, City of	*	*	*	549	*
Sinkhole 26	Oak Grove, City of	*	*	*	561	*
Sinkhole 27	Oak Grove, City of	*	*	*	552	*

*Not calculated for this Flood Risk Project

Table 11: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Sinkhole 28	Oak Grove, City of	*	*	*	552	*
Sinkhole 29	Oak Grove, City of	*	*	*	552	*
Sinkhole 30	Oak Grove, City of	*	*	*	551	*
Sinkhole 31	Oak Grove, City of	*	*	*	550	*
Sinkhole 32	Oak Grove, City of	*	*	*	553	*
Sinkhole 33	Oak Grove, City of	*	*	*	554	*
Sinkhole 34	Oak Grove, City of	*	*	*	557	*
Sinkhole 35	Oak Grove, City of	*	*	*	554	*
Sinkhole 36	Oak Grove, City of	*	*	*	547	*
Sinkhole 37	Oak Grove, City of	*	*	*	542	*
Sinkhole 38	Oak Grove, City of	*	*	*	552	*
Sinkhole 39	Oak Grove, City of	*	*	*	542	*
Sinkhole 40	Oak Grove, City of	*	*	*	542	*
Sinkhole 41	Oak Grove, City of	*	*	*	552	*
Sinkhole 42	Christian County, Unincorporated Areas; Oak Grove, City of	*	*	*	549	*
Sinkhole 43	Christian County, Unincorporated Areas; Oak Grove, City of	*	*	*	546	*
Sinkhole 44	Oak Grove, City of	*	*	*	560	*
Sinkhole 45	Oak Grove, City of	*	*	*	563	*
Sinkhole 46	Oak Grove, City of	*	*	*	563	*
Sinkhole 47	Oak Grove, City of	*	*	*	541	*
Sinkhole 48	Oak Grove, City of	*	*	*	556	*
Sinkhole 49	Oak Grove, City of	*	*	*	560	*
Sinkhole 50	Oak Grove, City of	*	*	*	558	*
Sinkhole 51	Oak Grove, City of	*	*	*	560	*
Sinkhole 52	Oak Grove, City of	*	*	*	567	*
Sinkhole 53	Oak Grove, City of	*	*	*	567	*
Sinkhole 55	Oak Grove, City of	*	*	*	568	*
Sinkhole 56	Oak Grove, City of	*	*	*	530	*
Sinkhole 57	Oak Grove, City of	*	*	*	532	*

*Not calculated for this Flood Risk Project

Table 11: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Sinkhole 58	Oak Grove, City of	*	*	*	549	*
Sinkhole 59	Oak Grove, City of	*	*	*	567	*
Sinkhole 60	Oak Grove, City of	*	*	*	558	*
Sinkhole 61	Oak Grove, City of	*	*	*	584	*
Sinkhole 62	Oak Grove, City of	*	*	*	590	*
Sinkhole 66	Christian County, Unincorporated Areas; Oak Grove, City of	*	*	*	501	*
Sinkhole 67	Christian County, Unincorporated Areas; Oak Grove, City of	*	*	*	507	*
Sinkhole 68	Christian County, Unincorporated Areas; Oak Grove, City of	*	*	*	504	*
Sinkhole 69	Oak Grove, City of	*	*	*	509	*
Sinkhole 70	Oak Grove, City of	*	*	*	512	*
Sinkhole 73	Oak Grove, City of	*	*	*	568	*
Sinkhole 74	Oak Grove, City of	*	*	*	580	*
Sinkhole 75	Oak Grove, City of	*	*	*	577	*
Sinkhole 76	Oak Grove, City of	*	*	*	544	*
Sinkhole 77	Oak Grove, City of	*	*	*	537	*
Sinkhole 78	Christian County, Unincorporated Areas	*	*	*	560	*
Sinkhole 79	Christian County, Unincorporated Areas	*	*	*	577	*
Sinkhole 80	Oak Grove, City of	*	*	*	555	*
Sinkhole 81	Christian County, Unincorporated Areas	*	*	*	526	*
Sinkhole 82	Christian County, Unincorporated Areas; Oak Grove, City of	*	*	*	474	*
Sinkhole 83	Oak Grove, City of	*	*	*	533	*
Sinkhole 84	Oak Grove, City of	*	*	*	536	*
Sinkhole 85	Oak Grove, City of	*	*	*	537	*
Sinkhole 86	Oak Grove, City of	*	*	*	538	*
Sinkhole 87	Oak Grove, City of	*	*	*	534	*
Sinkhole 88	Oak Grove, City of	*	*	*	543	*

*Not calculated for this Flood Risk Project

Table 11: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Sinkhole 89	Oak Grove, City of	*	*	*	541	*
Sinkhole 90	Oak Grove, City of	*	*	*	539	*
Sinkhole 91	Oak Grove, City of	*	*	*	543	*
Sinkhole 92	Oak Grove, City of	*	*	*	544	*
Sinkhole 93	Oak Grove, City of	*	*	*	541	*
Sinkhole 94	Oak Grove, City of	*	*	*	547	*
Sinkhole 95	Oak Grove, City of	*	*	*	541	*
Sinkhole 96	Oak Grove, City of	*	*	*	550	*
Sinkhole I-24	Christian County, Unincorporated Areas; Oak Grove, City of	*	*	*	561	*
Sinkhole Main Sink	Christian County, Unincorporated Areas; Oak Grove, City of	*	*	*	529	*
Sinkhole NF	Hopkinsville, City of	*	*	*	520.0	*
Sinkhole North West	Oak Grove, City of	*	*	*	569	*
Sinkhole South West	Oak Grove, City of	*	*	*	530	*
Westwood Sinkhole	Hopkinsville, City of	*	*	*	536.8	*

*Not calculated for this Flood Risk Project

Table 12: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
South Fork Little River Tributary 3	03437490	USGS	South Fork Little River Tributary near Hopkinsville, Kentucky	2.62	3/3/1977	2/3/1986
South Fork Little River	03437500	USGS	South Fork Little River at Hopkinsville, Kentucky	46.5	1/1/1937	5/19/1983

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed on Table 24, "Floodway Data."

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 13. Roughness coefficients are provided in Table 14. Roughness coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Buck Fork Pond River and Zone A Tributaries	Confluence with West Fork Pond River	1 square mile drainage area of all Zone A streams	Regression Equation	HEC-RAS v. 3.1.2	12/1/2006	A	None
Lake Morris Tributary 2	Confluence with Upper Branch North Fork Little River	0.69 miles upstream of intersection with Woodburn Hay Road	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
Lake Morris Tributary 2.1	Confluence with Lake Morris Tributary 2	0.14 miles upstream of intersection with Woodburn Hay Road	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
Little River	0.05 Miles Upstream of Intersection with Huffman Mill Rd	Confluence of South Fork Little River and North Fork Little River	HEC-HMS	HEC-RAS v. 3.1.2	12/1/2006	AE w/ Floodway	None
Little River and Zone A Tributaries	County Boundary	1 square mile drainage area of all Zone A streams	Regression Equation	HEC-RAS v. 3.1.2	5/20/2015	A	None
Lower Branch North Fork Little River	Confluence with Upper Branch North Fork Little River	0.43 miles upstream of confluence with Lower Branch North Fork Little River Tributary 2	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
Lower Branch North Fork Little River Tributary 2	Confluence with Lower Branch North Fork Little River	0.61 miles upstream of confluence with Lower Branch North Fork Little River	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
Middle Branch North Fork Little River	Confluence with Upper Branch North Fork Little River	0.07 miles upstream of confluence with Middle Branch North Fork Little River Tributary 2	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Middle Branch North Fork Little River Tributary 2	Confluence with Middle Branch North Fork Little River	1.03 miles upstream of intersection with Antioch Church Road	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
Montgomery Branch	Confluence with Montgomery Branch Tributary	1.83 miles upstream of Confluence with Montgomery Branch Tributary	HEC-HMS	HEC-RAS v. 3.1.2	12/1/2006	AE w/ Floodway	None
Montgomery Creek and Zone A Tributaries	County Boundary	1 square mile drainage area of all Zone A streams	Regression Equation	HEC-RAS v. 3.1.2	12/1/2006	A	None
Muddy Fork Little River and Zone A Tributaries	County Boundary	1 square mile drainage area of all Zone A streams	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	A	None
Noahs Spring Branch and Zone A Tributaries	County Boundary	1 square mile drainage area of all Zone A streams	Regression Equation	HEC-RAS v. 3.1.2	12/1/2006	A	None
North Fork Little River	Confluence with South Fork Little River	0.14 Miles downstream of confluence with Lower Branch North Fork Little River	HEC-HMS	HEC-RAS v. 3.1.2	12/1/2006	A	None
North Fork Little River	0.14 Miles downstream of confluence with Lower Branch North Fork Little River	Confluence of Lower Branch North Fork Little River and Upper Branch North Fork Little River	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE w/ Floodway	None
North Fork Little River Tributary	Confluence with North Fork Little River	0.25 miles upstream of the intersection with Cox Mill Road	HEC-HMS	HEC-RAS v. 3.1.2	12/1/2006	AE w/ Floodway	None

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
North Fork Little River Tributary 3	Confluence with North Fork Little River	0.26 miles upstream of the intersection with Faulkner Road	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
Rock Bridge Branch	Confluence with South Fork Little River	0.67 miles upstream of the intersection with Bradshaw Road	HEC-HMS	HEC-RAS v. 3.1.2	12/1/2006	AE w/ Floodway	None
Sanderson Creek	Confluence with North Fork Little River	0.40 miles upstream of the intersection with Eagle Way	HEC-HMS	HEC-RAS v. 3.1.2	12/1/2006	AE w/ Floodway	None
Sink Connect 3	Confluence with South Fork Little River	0.57 miles upstream of confluence with South Fork Little River	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
Sinkhole I-24	*	*	HEC-1	HEC-1	12/1/2006	AE	None
Sinkhole Main Sink	*	*	HEC-1	HEC-1	12/1/2006	AE	None
Sinkhole NF	*	*	XPSWMM version 10.0	XPSWMM version 10.0	12/1/2006	AE	None
Sinkhole North West	*	*	HEC-1	HEC-1	12/1/2006	AE	None
Sinkhole South West	*	*	HEC-1	HEC-1	12/1/2006	AE	None

*Data not available

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Sinkholes 1 – 96	*	*	HEC-HMS 2.2.2	HEC-HMS 2.2.2	12/1/2006	AE	None
Sinkholes 1A – 22A	*	*	XPSWMM version 10.0	XPSWMM version 10.0	12/1/2006	AE	None
Sinking Fork and Zone A Tributaries	County Boundary	1 square mile drainage area of all Zone A streams	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	A	None
South Fork Little River	Confluence with Little River	0.11 miles upstream of intersection with Dr. Martin Luther King Jr Way	HEC-HMS	HEC-RAS v. 4.1.0	5/20/2015	AE w/ Floodway	None
South Fork Little River	0.11 miles upstream of intersection with Dr. Martin Luther King Jr Way	0.93 miles upstream of Laytonsville Road	Gage Flow Weighting	HEC-RAS v. 4.1.0	5/20/2015	AE w/ Floodway	None
South Fork Little River Tributary	Confluence with South Fork Little River	0.03 miles upstream of intersection with Dr. Martin Luther King Jr Way	Effective Flow Weighting	HEC-RAS v. 4.1.0	5/20/2015	AE w/ Floodway	None
South Fork Little River Tributary	0.52 miles downstream of intersection with Bradshaw Road	0.35 miles upstream of intersection with Caskey Church Road	Effective Flow Weighting	HEC-RAS v. 4.1.0	5/20/2015	AE	None

*Data not available

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
South Fork Little River Tributary	0.03 miles upstream of intersection with Dr. Martin Luther King Jr Way	0.52 miles downstream of intersection with Bradshaw Road	HEC-HMS	HEC-RAS v. 3.1.2	12/1/2006	AE w/ Floodway	None
South Fork Little River Tributary 1.1	Confluence with South Fork Little River	0.72 miles upstream of the intersection with Russelville Road	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	A	None
South Fork Little River Tributary 3	Confluence with South Fork Little River	2.12 miles upstream of intersection with Russelville Road	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
South Fork Little River Tributary 4	Confluence with South Fork Little River	0.87 miles upstream of confluence with South Fork Little River	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
South Fork Little River Tributary 5	Confluence with South Fork Little River	0.5 miles upstream of confluence with South Fork Little River	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
South Fork Little River Tributary 6.1	Confluence with South Fork Little River	0.12 miles upstream of intersection with Old Edwards Mill Road	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
South Fork Little River Tributary 7	Confluence with South Fork Little River	1.26 miles upstream of intersection with Little River Church Road	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
South Fork Little River Tributary 8	Confluence with South Fork Little River	0.72 miles upstream of the intersection with Russelville Road	Regression Equation	HEC-RAS v. 4.1.1	5/20/2015	AE	None

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
South Fork Little River Tributary 9	Confluence with South Fork Little River	0.39 miles upstream of confluence with South Fork Little River	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
South Fork Little River Tributary 10	Confluence with South Fork Little River	0.29 miles upstream of confluence with Butler Road	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
South Fork Little River Tributary 10.1	Confluence with South Fork Little River Tributary 10	1.8 miles upstream of intersection with Butler Road	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
South Fork Little River Tributary 11	Confluence with South Fork Little River	0.12 miles upstream of intersection with Monkey Norman Road	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
Tradewater River and Zone A Tributaries	County Boundary	1 square mile drainage area of all Zone A streams	Regression Equation	HEC-RAS v. 3.1.2	12/1/2006	A	None
Upper Branch North Fork Little River	Confluence with North Fork Little River	0.79 miles upstream of intersection with Woodburn Hay Road	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
Warrens Fork	Confluence with South Fork Little River	2.47 miles upstream of the confluence with Warrens Fork Tributary 1	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	A	None
West Fork Pond River and Zone A Tributaries	Confluence with Buck Fork Pond River	1 square mile drainage area of all Zone A streams	Regression Equation	HEC-RAS v. 3.1.2	12/1/2006	A	None
Westwood Sinkhole	*	*	SWMM	SWMM	1/31/2014	AE	None

*Data not available

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
White Creek	Confluence with North Fork Little River	0.03 miles upstream of intersection with Madisonville Road at highway mile marker 17.58	HEC-HMS	HEC-RAS v. 3.1.2	12/1/2006	AE	None
White Creek	0.03 miles upstream of intersection with Madisonville Road at highway mile marker 15.34	0.03 miles upstream of intersection with Madisonville Road at highway mile marker 17.58	Gage Flow Weighting	HEC-RAS v. 4.1.0	5/20/2015	AE w/ Floodway	None
White Creek Tributary 1	Confluence with White Creek	1.93 miles upstream of the confluence with White Creek	Regression Equation	HEC-RAS v. 4.1.0	5/20/2015	AE	None
Zone A Sinkholes	*	*	*	*	12/1/2006	A	Not model backed.

*Data not available

Table 14: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
Lake Morris Tributary 2	0.03-0.04	0.03-0.1
Lake Morris Tributary 2.1	0.04	0.04-0.1
Little River	0.035	0.09-0.11
Lower Branch North Fork Little River	0.03-0.04	0.01-0.1
Lower Branch North Fork Little River Tributary 2	0.04	0.04-0.1
Middle Branch North Fork Little River	0.03-0.04	0.03-0.1
Middle Branch North Fork Little River Tributary 2	0.04	0.04-0.09
Montgomery Branch	0.05	0.08-0.13
North Fork Little River	0.35-0.55	0.08-0.13
North Fork Little River Tributary	0.055	0.07-0.1
North Fork Little River Tributary 3	0.04-0.05	0.05-0.08
Rock Bridge Branch	0.045-0.05	0.08-0.12
Sanderson Creek	0.053	0.08-0.12
South Fork Little River	0.025-0.055	0.06-0.095
South Fork Little River Tributary (No Floodway)	0.04-0.045	0.035-0.08
South Fork Little River Tributary 10	0.025-0.06	0.06-0.1
South Fork Little River Tributary 10.1	0.04-0.045	0.05-0.085
South Fork Little River Tributary 11	0.03-0.045	0.07-0.085
South Fork Little River Tributary 3	0.025-0.05	0.06-0.09
South Fork Little River Tributary 4	0.035-0.045	0.075-0.085
South Fork Little River Tributary 5	0.035	0.075
South Fork Little River Tributary 6.1	0.035-0.05	0.07-0.09
South Fork Little River Tributary 7	0.025-0.05	0.06-0.09
South Fork Little River Tributary 9	0.035-0.045	0.065-0.085
Sink Connect 3	0.045	0.085
Upper Branch North Fork Little River	0.03-0.04	0.03-0.1
Warrens Fork	0.03-0.04	0.065-0.08
White Creek (No Floodway)	0.04-0.05	0.04-0.08
White Creek Tributary 1	0.04-0.05	0.06-0.08
South Fork Little River Tributary 1.1	0.04	0.08
South Fork Little River Tributary 8	0.04	0.08
Warrens Fork Tributary 1	0.04	0.08
Lower Branch North Fork Little River Tributary 1	0.04	0.08
Middle Branch North Fork Little River Tributary 1	0.04	0.08
Lower Cumberland Approximate Models, Christian County	0.03-0.05	0.05-0.095
Little River	0.035	0.09-0.11
Montgomery Branch	0.05	0.08-0.12

Table 14: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
North Fork Little River	0.35-0.55	0.08-0.13
North Fork Little River Tributary	0.055	0.07-0.1
Rock Bridge Branch	0.045-0.05	0.08-0.12
Sanderson Creek	0.053	0.08-0.12
South Fork Little River Tributary (with floodway)	0.05-0.052	0.08-0.1
White Creek (with floodway)	0.055	0.08-0.1
Lower Cumberland Approximate Models, Christian County	0.03 - 0.05	0.05 - 0.095

5.3 Coastal Analyses

This section is not applicable to this FIS project.

Table 15: Summary of Coastal Analyses

[Not Applicable to this FIS Project]

5.3.1 Total Stillwater Elevations

This section is not applicable to this FIS project.

Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas

[Not Applicable to this FIS Project]

Table 16: Tide Gage Analysis Specifics

[Not Applicable to this FIS Project]

5.3.2 Waves

This section is not applicable to this FIS project.

5.3.3 Coastal Erosion

This section is not applicable to this FIS project.

5.3.4 Wave Hazard Analyses

This section is not applicable to this FIS project

Table 17: Coastal Transect Parameters

[Not Applicable to this FIS Project]

Figure 9: Transect Location Map

[Not Applicable to this FIS Project]

5.4 Alluvial Fan Analyses

This section is not applicable to this FIS project.

Table 18: Summary of Alluvial Fan Analyses

[Not Applicable to this FIS Project]

Table 19: Results of Alluvial Fan Analyses

[Not Applicable to this FIS Project]

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

All FIS Reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS Reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the completion of the North American Vertical Datum of 1988 (NAVD88), many FIS Reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

Flood elevations shown in this FIS Report and on the FIRMs are referenced to NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between NGVD29 and NAVD88 or other datum conversion, visit the National Geodetic Survey website at www.ngs.noaa.gov, or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please contact information services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

The datum conversion calculated for the previous Christian County FIS for the entire county was -0.35 feet.

Table 20: Countywide Vertical Datum Conversion

[Not Applicable to this FIS Project]

Table 21: Stream-by-Stream Vertical Datum Conversion

[Not Applicable to this FIS Project]

6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA's FIRM database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA's *Guidelines and Standards for Flood Risk Analysis and Mapping*, <http://www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping>.

Base map information shown on the FIRM was derived from the sources described in Table 22.

Table 22: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
Digital Orthophoto	NAIP	2014	2 feet	Color orthoimagery was provided for the county
Political boundaries	KY Geonet	2014	N/A	Municipal and county boundaries
Transportation Features	KY Geonet	2014	N/A	Roads and railroads
Surface Water Features	KY Geonet	2015	N/A	Modeling streams were derived from NHD stream centerlines digitized to the NAIP 2014 Imagery and supplemented by source LiDAR

6.3 Floodplain and Floodway Delineation

The FIRM shows tints, screens, and symbols to indicate floodplains and floodways as well as the locations of selected cross sections used in the hydraulic analyses and floodway computations.

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 23.

In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 24, "Floodway Data."

Table 23: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Scale	Contour Interval	Citation
Christian County	All within HUC 05130205	LiDAR	1 meter GSD	2 ft.	KYGeonet
City of Oak Grove	All within City of Oak Grove	LiDAR	1:2400	2 ft.	3001 (FEMA 2008)
Christian County Unincorporated Areas, City of Lafayette, City of Pembroke, City of Crofton	All within HUC 05140205, 05110006, and 05130206, except those within City of Oak Grove.	NED 1/3 Arc Second	1:24,000	10 meter	USGS Topo Series (FEMA 2008)

BFEs shown at cross sections on the FIRM represent the 1% annual chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE
Little River								
A	1,197	320	5,376	4.1	495.4	495.4	496.2	0.8
B	5,258	339	5,108	4.3	497.1	497.1	497.9	0.8
C	9,446	253	4,728	4.7	498.8	498.8	499.7	0.9
D	12,212	305	5,684	3.9	500.0	500.0	500.9	0.9
E	17,368	384	5,634	3.9	501.9	501.9	502.8	0.9
F	21,898	380	6,277	3.5	504.0	504.0	504.9	0.9

¹Stream Distance in Feet above a point approximately 250 feet Upstream of Huffman Mill Road

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE
Montgomery Branch								
A	336	112	968	1.7	558.6	558.6	558.6	0.0
B	2,147	204	864	1.9	559.5	559.5	560.0	0.5
C	3,248	141	479	3.5	563.6	563.6	564.2	0.6
D	4,007	136	418	2.0	566.8	566.8	567.4	0.6
E	5,292	38	172	4.9	573.0	573.0	573.2	0.2
F	6,025	56	236	3.5	576.2	576.2	577.1	0.9
G	6,801	28	154	5.4	579.6	579.6	579.9	0.3
H	8,531	16	108	7.7	586.4	586.4	587.2	0.8
I	9,653	57	263	3.2	591.6	591.6	592.3	0.7

¹Feet Above Confluence with Montgomery Creek Tributary 16

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE
North Fork Little River								
A	1,952	231	3,872	1.9	505.1	505.1	506.1	1.0
B	3,334	390	6,051	1.2	505.3	505.3	506.3	1.0
C	5,496	297	4,392	1.7	505.4	505.4	506.4	1.0
D	7,264	432	5,534	1.3	505.6	505.6	506.5	0.9
E	9,735	509	5,464	1.4	505.8	505.8	506.7	0.9
F	11,736	434	4,898	1.5	506.0	506.0	506.9	0.9
G	14,261	290	3,886	1.9	506.4	506.4	507.2	0.8
H	16,212	250	3,397	2.2	506.7	506.7	507.5	0.8
I	20,564	120	2,197	3.4	507.6	507.6	508.5	0.9
J	22,787	111	2,037	3.8	508.1	508.1	509.0	0.9
K	26,306	188	2,390	3.2	509.2	509.2	510.1	0.9
L	28,823	158	2,018	3.8	510.0	510.0	510.9	0.9
M	31,929	131	2,012	3.8	511.1	511.1	512.0	0.9
N	34,167	140	2,024	3.8	512.2	512.2	512.9	0.7
O	36,286	148	2,088	3.7	512.9	512.9	513.7	0.8
P	37,761	97	1,688	4.3	513.8	513.8	514.6	0.8
Q	40,081	125	1,829	4.0	515.2	515.2	516.0	0.8
R	41,759	100	1,742	4.2	516.0	516.0	517.0	1.0
S	43,602	100	1,664	4.4	516.8	516.8	517.7	0.9
T	45,584	130	1,806	4.0	517.6	517.6	518.6	1.0
U	47,056	163	2,329	2.7	518.6	518.6	519.5	0.9
V	50,192	120	1,782	3.6	519.3	519.3	520.1	0.8

¹Feet Above Confluence with Little River

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE
North Fork Little River (continued)								
W	52,561	95	1,673	3.8	520.3	520.3	521.0	0.7
X	54,724	117	1,689	3.8	521.0	521.0	521.9	0.9
Y	56,330	120	1,813	3.5	521.6	521.6	522.6	1.0
Z	58,476	95	1,544	4.1	522.6	522.6	523.4	0.8
AA	60,602	105	1,469	4.4	523.6	523.6	524.5	0.9
AB	63,765	88	1,519	3.8	525.5	525.5	526.4	0.9
AC	65,903	109	1,570	3.6	526.5	526.5	527.5	1.0
AD	67,468	101	1,491	3.1	528.2	528.2	529.0	0.8
AE	69,684	153	1,950	2.4	529.1	529.1	530.0	0.9
AF	70,985	184	2,531	1.8	529.7	529.7	530.6	0.9
AG	73,084	255	2,606	1.8	530.1	530.1	531.0	0.9
AH	74,639	220	2,022	2.3	530.5	530.5	531.5	1.0
AI	76,880	275	2,503	1.8	532.2	532.2	533.0	0.8
AJ	79,976	300	2,147	1.1	533.2	533.2	534.1	0.9
AK	82,948	160	1,646	1.5	534.8	534.8	535.7	0.9
AL	84,791	180	1,678	1.4	535.1	535.1	536.1	1.0

¹Feet Above Confluence with Little River

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE
North Fork Little River Tributary								
A	175	22	91	6.7	509.8	491.8 ²	491.8	0.0
B	529	17	73	8.4	509.8	496.2 ²	496.2	0.0
C	1,042	30	131	4.7	509.8	501.1 ²	501.1	0.0
D	1,706	51	178	3.4	509.8	506.8 ²	507.1	0.3
E	2,629	34	133	4.6	511.6	511.6	511.6	0.0

¹Feet Above Confluence with North Fork Little River

²Elevation computed without consideration of backwater effect from North Fork Little River

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE
Rock Bridge Branch								
A	48	175	506	4.6	504.7	494.9 ²	495.2	0.3
B	1,218	149	840	2.1	504.7	497.8 ²	498.8	1.0
C	2,679	123	616	2.9	504.7	500.2 ²	500.9	0.7
D	4,657	136	478	3.7	504.7	503.8 ²	504.8	1.0
E	5,234	148	557	3.2	505.9	505.9	506.5	0.6
F	6,502	150	732	2.4	508.3	508.3	509.3	1.0
G	7,464	138	763	2.3	509.3	509.3	510.3	1.0
H	8,872	118	712	2.5	511.7	511.7	512.3	0.6
I	9,625	100	502	2.0	512.1	512.1	512.9	0.8
J	10,825	82	317	3.2	513.7	513.7	514.5	0.8
K	12,358	85	321	3.2	517.6	517.6	518.3	0.7
L	13,681	57	252	4.1	521.1	521.1	521.8	0.7
M	16,091	116	454	2.3	527.7	527.7	528.6	0.9
N	17,598	97	393	2.6	531.5	531.5	532.3	0.8
O	19,928	91	277	1.8	536.1	536.1	537.0	0.9
P	22,169	23	119	4.2	541.9	541.9	542.1	0.2
Q	22,522	25	113	4.4	543.2	543.2	543.2	0.0
R	24,120	31	157	3.2	548.0	548.0	549.0	1.0
S	26,450	41	187	2.7	555.9	555.9	556.9	1.0
T	27,694	60	248	2.0	563.0	563.0	563.1	0.1
U	29,488	25	128	3.9	568.5	568.5	569.2	0.7
V	30,720	21	134	3.7	572.2	572.2	573.2	1.0

¹Feet Above Confluence with South Fork Little River

²Elevation computed without consideration of backwater effect from South Fork Little River

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE
Sanderson Creek								
A	897	27	337	3.6	524.5	517.1 ²	517.2	0.1
B	1,494	39	323	3.7	524.5	518.8 ²	519.2	0.4
C	2,642	135	410	2.9	524.5	520.0 ²	520.8	0.8
D	3,811	210	260	3.8	524.5	524.5	524.5	0.0
E	4,795	27	170	5.7	528.1	528.1	528.5	0.4
F	6,034	50	193	5.0	532.8	532.8	533.6	0.8
G	7,151	55	308	3.2	535.6	535.6	536.6	1.0
H	8,179	41	107	7.1	537.5	537.5	538.4	0.9
I	9,078	56	285	2.1	541.2	541.2	541.4	0.2
J	9,917	22	137	4.3	541.9	541.9	542.1	0.2
K	10,730	62	323	1.8	548.3	548.3	548.6	0.3
L	11,652	70	290	2.0	549.3	549.3	549.7	0.4
M	13,356	62	225	2.6	552.6	552.6	553.0	0.4

¹Feet Above Confluence with North Fork Little River

²Elevation computed without consideration of backwater effect from North Fork Little River

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET)			
CROSS SECTION	DISTANCE ²	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE
South Fork Little River								
A	493	820	5,446	2.6	504.7	497.5 ³	497.5	0.0
B	5,789	248	2,585	5.4	504.7	501.5 ³	501.6	0.1
C	7,910	343	3,289	4.3	504.7	504.3 ³	504.5	0.2
D	13,821	165	2,522	5.6	509.7	509.7	509.7	0.0
E	13,951	198	3,176	4.4	510.7	510.7	510.7	0.0
F	23,239	296	3,424	3.5	515.0	515.0	515.4	0.4
G	27,308	639	7,258	1.7	517.4	517.4	517.7	0.3
H	34,676	507	4,125	2.9	520.4	520.4	521.4	1.0
I	36,262	169	2,016	6.0	521.8	521.8	522.6	0.9
J	36,413	219	2,625	4.6	522.9	522.9	523.9	1.0
K	41,550	141	2,547	4.2	525.6	525.6	526.5	0.9
L	42,028	474	4,517	2.4	526.5	526.5	527.5	1.0
M	44,376	440	3,270	3.3	528.2	528.2	529.1	0.9
N	44,490	435	3,451	3.1	529.1	529.1	529.5	0.3
O	48,876	510	6,450	1.6	532.6	532.6	533.5	0.9
P	53,662	512	4,009	2.6	534.5	534.5	535.5	1.0
Q	55,651	541	5,798	1.8	536.1	536.1	536.9	0.8
R	60,025	727	4,141	2.5	537.2	537.2	538.2	1.0
S	62,483	897	5,717	1.8	540.4	540.4	541.3	0.9
T	67,930	432	2,917	3.6	541.8	541.8	542.8	1.0
U	68,664	877	7,613	1.3	543.7	543.7	544.2	0.6
V-AU ¹	*	*	*	*	*	*	*	*

¹Stream portion studied by limited detailed methods. See Table 25 for regulatory elevations.

²Feet Above Confluence with Little River

³Elevation computed without consideration of backwater effects from Little River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
CHRISTIAN COUNTY, KY
 AND INCORPORATED AREAS

FLOODWAY DATA

SOUTH FORK LITTLE RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET)			
CROSS SECTION	DISTANCE ²	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE
South Fork Little River Tributary								
A-H ¹	*	*	*	*	*	*	*	*
I	11,327	192	610	3.7	536.8	536.8	537.3	0.5
J	11,700	265	849	2.6	539.1	539.1	539.5	0.4
K	12,164	93	332	1.6	539.7	539.7	540.6	0.9
L	12,608	64	260	2.0	540.1	540.1	540.9	0.8
M	12,975	33	81	6.4	541.0	541.0	541.3	0.3
N	13,503	121	221	2.3	545.8	545.8	545.9	0.1
O	14,460	79	139	2.6	548.9	548.9	548.9	0.0
P	15,410	106	181	2.0	552.3	552.3	552.5	0.2
Q	16,316	93	222	1.6	554.0	554.0	554.4	0.4
R	16,845	116	283	1.3	555.9	555.9	556.6	0.7
S-W ¹	*	*	*	*	*	*	*	*

¹Stream portion studied by limited detailed methods. See Table 25 for regulatory elevations.

²Feet Above Confluence with South Fork Little River

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET)			
CROSS SECTION	DISTANCE ²	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE
White Creek								
A	659	67	488	2.3	533.0	528.5 ³	529.3	0.8
B	1,727	72	515	2.2	533.0	528.9 ³	529.8	0.9
C	3,036	60	407	2.8	533.0	529.7 ³	530.4	0.7
D	3,895	57	372	3.1	533.0	530.8 ³	531.3	0.5
E	5,511	54	357	3.2	534.0	534.0	534.4	0.4
F	7,542	61	365	3.1	536.4	536.4	537.0	0.6
G	9,136	37	223	4.5	538.1	538.1	538.7	0.6
H	10,690	34	171	5.9	539.7	539.7	540.3	0.6
I-AH ¹	*	*	*	*	*	*	*	*

¹Stream portion studied by limited detailed methods. See Table 25 for regulatory elevations.

²Feet Above Confluence with Confluence with North Fork Little River

³Elevation computed without consideration of backwater effect from North Fork Little River

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station ¹	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Lake Morris Tributary 2	A	8,342	1,731	589.2	30	26
Lake Morris Tributary 2	B	8,517	1,731	590.8	46	79
Lake Morris Tributary 2	C	9,844	1,360	596.8	31	12
Lake Morris Tributary 2	D	9,966	1,360	597.9	22	22
Lake Morris Tributary 2	E	10,652	1,287	601.0	15	15
Lake Morris Tributary 2	F	11,099	1,090	603.6	17	17
Lake Morris Tributary 2	G	11,580	1,073	605.0	10	10
Lake Morris Tributary 2.1	A	1,861	1,170	589.2	231	27
Lake Morris Tributary 2.1	B	2,307	1,170	591.2	14	51
Lake Morris Tributary 2.1	C	2,981	1,170	594.9	18	18
Lake Morris Tributary 2.1	D	3,070	1,170	598.0	20	20
Lake Morris Tributary 2.1	E	3,619	1,170	599.5	13	106
Lake Morris Tributary 2.1	F	3,759	1,013	600.5	16	81
Lower Branch North Fork Little River	A	663	1,935	538.5	180	51
Lower Branch North Fork Little River	B	7,640	1,935	540.4	67	67
Lower Branch North Fork Little River	C	21,985	3,070	572.1	20	218
Lower Branch North Fork Little River	D	22,513	3,070	572.7	22	22
Lower Branch North Fork Little River	E	22,682	3,070	575.5	19	52
Lower Branch North Fork Little River	F	23,197	3,070	579.0	44	127
Lower Branch North Fork Little River	G	24,752	3,070	584.6	109	137
Lower Branch North Fork Little River	H	26,329	2,619	587.4	280	15
Lower Branch North Fork Little River	I	27,762	2,619	592.0	27	27
Lower Branch North Fork Little River	J	28,339	2,619	594.8	32	166
Lower Branch North Fork Little River	K	31,176	2,619	599.1	148	42
Lower Branch North Fork Little River	L	32,099	2,368	601.9	17	278
Lower Branch North Fork Little River	M	33,210	2,368	603.3	22	58
Lower Branch North Fork Little River	N	33,768	2,014	605.4	213	34
Lower Branch North Fork Little River	O	35,379	2,014	607.6	128	167

¹ Feet above mouth

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station ¹	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Lower Branch North Fork Little River	P	37,227	2,014	612.1	23	23
Lower Branch North Fork Little River	Q	38,897	1,857	617.5	36	125
Lower Branch North Fork Little River	R	41,391	1,104	627.9	47	7
Lower Branch North Fork Little River Tributary 2	A	108	1,857	618.2	143	7
Lower Branch North Fork Little River Tributary 2	B	1,691	1,218	625.8	15	15
Lower Branch North Fork Little River Tributary 2	C	2,216	1,218	629.1	12	68
Lower Branch North Fork Little River Tributary 2	D	3,222	1,103	633.3	14	68
Middle Branch North Fork Little River	A	27	1,799	540.2 ²	32	23
Middle Branch North Fork Little River	B	1,439	1,306	543.3	27	77
Middle Branch North Fork Little River	C	2,314	1,306	545.7	20	20
Middle Branch North Fork Little River	D	2,966	1,306	550.2	35	35
Middle Branch North Fork Little River	E	11,396	2,296	579.6	141	16
Middle Branch North Fork Little River	F	11,496	2,296	582.5	141	16
Middle Branch North Fork Little River	G	12,679	2,296	583.6	120	58
Middle Branch North Fork Little River	H	13,177	2,296	586.0	90	100
Middle Branch North Fork Little River	I	14,744	2,135	590.7	20	231
Middle Branch North Fork Little River	J	15,281	906	591.5	15	84
Middle Branch North Fork Little River Tributary 2	A	334	1,784	591.5	140	35
Middle Branch North Fork Little River Tributary 2	B	1,778	1,784	596.3	129	11
Middle Branch North Fork Little River Tributary 2	C	1,975	1,784	597.0	22	22
Middle Branch North Fork Little River Tributary 2	D	2,075	1,784	602.5	22	22
Middle Branch North Fork Little River Tributary 2	E	3,756	1,784	603.2	140	12
Middle Branch North Fork Little River Tributary 2	F	5,334	1,498	610.5	15	15

¹ Feet above mouth² Water-surface elevations include backwater effects

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station ¹	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Middle Branch North Fork Little River Tributary 2	G	5,953	1,498	614.8	25	56
Middle Branch North Fork Little River Tributary 2	H	7,478	1,347	622.1	12	12
North Fork Little River Tributary 3	A	61	987	513.7 ²	10	10
North Fork Little River Tributary 3	B	699	987	513.7 ²	17	15
North Fork Little River Tributary 3	C	1,308	987	513.7 ²	22	22
North Fork Little River Tributary 3	D	1,370	987	514.2	22	22
North Fork Little River Tributary 3	E	1,778	987	514.3	25	25
North Fork Little River Tributary 3	F	1,831	987	515.4	32	32
North Fork Little River Tributary 3	G	2,159	867	516.8	16	23
North Fork Little River Tributary 3	H	2,421	867	519.2	18	73
North Fork Little River Tributary 3	I	2,807	867	521.1	20	20
North Fork Little River Tributary 3	J	2,869	676	523.7	20	20
North Fork Little River Tributary 3	K	3,729	660	526.1	13	51
North Fork Little River Tributary 3	L	4,717	660	531.4	20	20
North Fork Little River Tributary 3	M	5,077	660	533.3	25	10
North Fork Little River Tributary 3	N	5,287	660	535.3	36	33
North Fork Little River Tributary 3	O	6,528	521	539.9	43	18
North Fork Little River Tributary 3	P	6,839	521	541.8	28	10
North Fork Little River Tributary 3	Q	7,342	521	547.0	12	60
Sink Connect 3	A	171	395	538.3 ²	30	30
Sink Connect 3	B	738	395	538.3 ²	40	40
Sink Connect 3	C	1,836	304	550.2	52	52
Sink Connect 3	D	2,343	304	555.2	38	38
Sink Connect 3	E	2,840	179	559.1	57	57
South Fork Little River	V	72,101	9,058	544.3	148	284

¹ Feet above mouth

² Water-surface elevations include backwater effects

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station ¹	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
South Fork Little River	W	74,958	9,058	546.8	261	267
South Fork Little River	X	75,603	9,058	547.1	220	99
South Fork Little River	Y	75,780	9,058	547.8	262	112
South Fork Little River	Z	83,333	9,058	551.3	67	400
South Fork Little River	AA	87,221	7,982	554.6	115	49
South Fork Little River	AB	88,862	7,982	556.3	269	423
South Fork Little River	AC	91,833	7,982	557.6	207	62
South Fork Little River	AD	94,514	7,982	559.9	646	523
South Fork Little River	AE	99,338	7,137	566.1	34	948
South Fork Little River	AF	101,317	7,137	568.5	32	143
South Fork Little River	AG	103,830	7,137	571.5	119	360
South Fork Little River	AH	111,339	4,464	577.6	134	109
South Fork Little River	AI	113,695	2,889	580.6	286	192
South Fork Little River	AJ	114,330	2,889	580.6	46	24
South Fork Little River	AK	116,330	2,889	585.1	67	30
South Fork Little River	AL	118,330	2,889	592.3	19	303
South Fork Little River	AM	119,338	2,889	595.2	23	94
South Fork Little River	AN	120,011	2,598	597.2	27	27
South Fork Little River	AO	121,693	2,207	602.3	205	55
South Fork Little River	AP	123,338	2,207	606.3	184	24
South Fork Little River	AQ	124,273	2,207	610.0	158	17
South Fork Little River	AR	128,185	1,936	617.7	26	26
South Fork Little River	AS	131,324	1,269	627.3	86	14
South Fork Little River	AT	132,455	1,269	632.0	40	26
South Fork Little River	AU	133,015	1,075	633.9	17	56
South Fork Little River Tributary	A	3,817	3,051	515.1	40	30
South Fork Little River Tributary	B	4,267	3,051	515.3	17	197
South Fork Little River Tributary	C	5,799	3,051	521.1	27	31
South Fork Little River Tributary	D	6,167	2,673	523.5	41	339
South Fork Little River Tributary	E	6,835	2,673	524.3	32	121
South Fork Little River Tributary	F	7,841	2,673	528.8	38	155

¹ Feet above mouth

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station ¹	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
South Fork Little River Tributary	G	9,872	2,673	533.2	169	175
South Fork Little River Tributary	H	10,722	2,673	535.4	15	225
South Fork Little River Tributary	S	20,711	1,109	558.0	72	15
South Fork Little River Tributary	T	21,533	1,109	563.5	14	14
South Fork Little River Tributary	U	21,608	1,109	564.4	14	14
South Fork Little River Tributary	V	23,164	1,109	572.1	17	17
South Fork Little River Tributary	W	23,400	1,109	574.0	14	52
South Fork Little River Tributary 3	A	1,766	1,920	541.7 ²	65	32
South Fork Little River Tributary 3	B	3,248	1,920	543.9	29	89
South Fork Little River Tributary 3	C	4,252	1,920	546.4	25	25
South Fork Little River Tributary 3	D	5,212	1,920	551.1	26	26
South Fork Little River Tributary 3	E	5,747	1,920	555.4	31	30
South Fork Little River Tributary 3	F	7,352	1,326	558.4	183	22
South Fork Little River Tributary 3	G	8,648	1,326	559.5	16	16
South Fork Little River Tributary 3	H	8,706	1,326	562.2	20	20
South Fork Little River Tributary 3	I	9,401	1,326	562.7	61	25
South Fork Little River Tributary 3	J	10,484	1,307	566.0	54	22
South Fork Little River Tributary 3	K	12,499	1,307	574.5	17	167
South Fork Little River Tributary 3	L	13,979	1,303	578.6	63	43
South Fork Little River Tributary 3	M	15,437	1,303	582.1	12	106
South Fork Little River Tributary 3	N	16,337	1,001	586.3	11	98
South Fork Little River Tributary 4	A	1563	1,267	544.0 ²	41	29
South Fork Little River Tributary 4	B	2,117	1,267	544.0 ²	57	57

¹ Feet above mouth² Water-surface elevations include backwater effects

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station ¹	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
South Fork Little River Tributary 4	C	3,555	1,267	551.1	66	20
South Fork Little River Tributary 4	D	4,501	1,080	556.2	34	34
South Fork Little River Tributary 5	A	47	1,576	545.2 ²	12	12
South Fork Little River Tributary 5	B	563	1,576	545.2 ²	84	275
South Fork Little River Tributary 5	C	1,137	1,576	545.2 ²	28	101
South Fork Little River Tributary 5	D	2,066	1,576	545.2 ²	85	30
South Fork Little River Tributary 5	E	2,561	1,390	547.0	17	80
South Fork Little River Tributary 6.1	A	254	1,936	551.7 ²	16	16
South Fork Little River Tributary 6.1	B	456	1,936	551.7 ²	35	106
South Fork Little River Tributary 6.1	C	1,537	1,936	551.7 ²	107	78
South Fork Little River Tributary 6.1	D	3,142	1,936	551.9	20	126
South Fork Little River Tributary 6.1	E	4,904	1,936	560.0	19	167
South Fork Little River Tributary 6.1	F	5,828	1,697	562.2	16	265
South Fork Little River Tributary 7	A	1,392	1,567	552.9 ²	104	104
South Fork Little River Tributary 7	B	3,289	1,467	559.2	35	35
South Fork Little River Tributary 7	C	4,275	1,467	567.1	66	69
South Fork Little River Tributary 7	D	5,891	1,467	574.4	20	20
South Fork Little River Tributary 7	E	6,468	1,467	575.9	17	17
South Fork Little River Tributary 7	F	7,158	1,467	582.1	20	19
South Fork Little River Tributary 7	G	9,228	1,064	588.6	37	61
South Fork Little River Tributary 9	A	543	1,163	563.9 ²	27	233
South Fork Little River Tributary 9	B	960	1,163	563.9 ²	17	17
South Fork Little River Tributary 9	C	1,572	1,163	565.6	101	38

¹ Feet above mouth² Water-surface elevations include backwater effects

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station ¹	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
South Fork Little River Tributary 9	D	2,037	1,072	566.5	29	29
South Fork Little River Tributary 10	A	65	2,782	580.2 ²	102	26
South Fork Little River Tributary 10	B	2,160	1,630	583.0	172	92
South Fork Little River Tributary 10	C	3,548	1,334	584.7	123	15
South Fork Little River Tributary 10	D	4,868	1,334	588.4	13	13
South Fork Little River Tributary 10	E	5,356	1,334	591.3	20	100
South Fork Little River Tributary 10	F	5,736	1,334	591.7	32	90
South Fork Little River Tributary 10	G	6,268	1,194	593.7	16	146
South Fork Little River Tributary 10.1	A	593	1,958	583.3	92	104
South Fork Little River Tributary 10.1	B	1,228	1,958	583.9	24	122
South Fork Little River Tributary 10.1	C	2,399	1,958	587.3	47	58
South Fork Little River Tributary 10.1	D	3,013	1,958	590.1	27	27
South Fork Little River Tributary 10.1	E	3,627	1,958	595.6	171	19
South Fork Little River Tributary 10.1	F	5,482	1,729	600.6	100	29
South Fork Little River Tributary 10.1	G	7,847	1,729	610.8	98	29
South Fork Little River Tributary 10.1	H	9,434	1,729	614.5	151	92
South Fork Little River Tributary 10.1	I	11,230	1,188	620.3	28	106
South Fork Little River Tributary 10.1	J	11,957	905	623.7	28	25
South Fork Little River Tributary 10.1	K	12,447	894	627.2	54	86
South Fork Little River Tributary 11	A	500	1,258	619.4	16	129
South Fork Little River Tributary 11	B	1,944	1,258	624.3	10	10
South Fork Little River Tributary 11	C	2,020	1,258	625.7	10	10
South Fork Little River Tributary 11	D	2,594	1,179	628.3	10	123

¹ Feet above mouth² Water-surface elevations include backwater effects

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station ¹	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Upper Branch North Fork Little River	A	129	2,165	535.1	20	458
Upper Branch North Fork Little River	B	3,788	2,165	536.2	28	101
Upper Branch North Fork Little River	C	7,603	2,165	538.6	27	27
Upper Branch North Fork Little River	D	8,539	1,065	540.3	55	32
Upper Branch North Fork Little River	E	9,483	1,065	540.9	17	17
Upper Branch North Fork Little River	F	10,012	1,065	543.4	27	27
Upper Branch North Fork Little River	G	12,037	1,065	548.6	120	17
Upper Branch North Fork Little River	H	13,487	1,065	551.3	14	14
Upper Branch North Fork Little River	I	14,521	1,065	553.3	20	20
Upper Branch North Fork Little River	J	19,837	1,743	589.2	17	127
Upper Branch North Fork Little River	K	20,271	1,743	591.6	17	53
Upper Branch North Fork Little River	L	20,901	1,743	596.4	45	35
Upper Branch North Fork Little River	M	21,942	1,743	602.2	17	17
Upper Branch North Fork Little River	N	22,405	1,743	606.7	21	21
Upper Branch North Fork Little River	O	23,329	1,477	612.3	22	22
Upper Branch North Fork Little River	P	24,056	1,477	618.8	44	15
Upper Branch North Fork Little River	Q	24,299	1,477	621.4	13	9
Upper Branch North Fork Little River	R	24,380	1,477	625.1	25	25
Upper Branch North Fork Little River	S	24,921	1,477	626.1	15	15
Upper Branch North Fork Little River	T	25,316	1,265	630.4	17	17
Upper Branch North Fork Little River	U	26,331	1,265	639.2	25	25
Upper Branch North Fork Little River	V	27,456	1,265	646.0	22	27
Upper Branch North Fork Little River	W	28,456	1,077	653.7	22	55

¹ Feet above mouth

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station ¹	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Warrens Fork	A	1,306	3,430	574.6 ²	180	27
Warrens Fork	B	3,081	3,430	577.4	22	371
Warrens Fork	C	3,821	3,430	577.9	578	25
Warrens Fork	D	4,750	3,430	581.3	27	265
Warrens Fork	E	5,795	3,220	584.4	32	252
Warrens Fork	F	8,390	3,220	590.9	27	207
Warrens Fork	G	8,662	3,220	591.2	21	120
Warrens Fork	H	8,884	3,220	592.4	24	264
Warrens Fork	I	8,953	3,220	594.0	24	264
Warrens Fork	J	11,136	2,733	595.4	330	22
Warrens Fork	K	11,673	2,733	596.2	205	20
Warrens Fork	L	12,812	2,584	599.7	30	210
Warrens Fork	M	17,437	2,034	610.3	33	33
Warrens Fork	N	17,940	1,617	610.8	26	26
Warrens Fork	O	20,136	1,617	617.8	150	22
Warrens Fork	P	22,243	1,410	624.6	99	51
White Creek	I	11,176	1,090	543.3	170	15
White Creek	J	14,175	1,090	548.1	302	20
White Creek	K	15,135	1,090	551.4	17	171
White Creek	L	16,281	1,090	553.6	25	140
White Creek	M	17,887	1,090	562.8	30	30
White Creek	N	17,997	1,090	563.9	32	32
White Creek	O	18,173	1,090	564.6	28	28
White Creek	P	18,319	1,090	567.6	27	27
White Creek	Q	18,586	1,090	569.3	13	13
White Creek	R	18,744	1,090	571.6	23	23
White Creek	S	18,999	1,090	573.7	19	19
White Creek	T	19,253	1,090	576.5	19	19
White Creek	U	19,768	1,090	581.9	14	14
White Creek	V	20,816	1,090	594.4	15	15
White Creek	W	20,979	1,090	598.2	11	11
White Creek	X	21,027	1,090	598.2	15	15
White Creek	Y	22,119	1,090	612.1	15	15
White Creek	Z	22,723	1,090	618.4	19	19
White Creek	AA	22,806	1,090	620.9	19	19

¹ Feet above mouth² Water-surface elevations include backwater effects

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station ¹	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
White Creek	AB	23,148	1,090	621.7	15	15
White Creek	AC	23,695	1,090	627.5	16	16
White Creek	AD	23,773	597	629.4	11	11
White Creek	AE	23,885	597	639.6	15	15
White Creek	AF	24,031	597	639.6	16	16
White Creek	AG	24,126	597	641.6	16	16
White Creek	AH	24,166	597	641.7	25	15
White Creek Tributary 1	A	171	2,302	555.8	236	175
White Creek Tributary 1	B	2,418	2,006	561.8	22	22
White Creek Tributary 1	C	2,765	2,006	563.7	25	126
White Creek Tributary 1	D	7,995	1,301	594.1	126	15
White Creek Tributary 1	E	8,653	531	596.5	24	24
White Creek Tributary 1	F	9,093	531	600.4	20	20
White Creek Tributary 1	G	9,570	531	604.0	25	25
White Creek Tributary 1	H	10,547	438	616.4	11	11

¹ Feet above mouth

6.4 Coastal Flood Hazard Mapping

This section is not applicable to this FIS project.

Table 26: Summary of Coastal Transect Mapping Considerations

[Not Applicable to this FIS Project]

6.5 FIRM Revisions

This FIS Report and the FIRM are based on the most up-to-date information available to FEMA at the time of its publication; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time. Certain types of requests require submission of supporting data. FEMA may also initiate a revision. Revisions to FIS projects may take several forms, including Letters of Map Amendment (LOMAs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs) (referred to collectively as Letters of Map Change (LOMCs)), Physical Map Revisions (PMRs), and FEMA-contracted restudies. These types of revisions are further described below. Some of these types of revisions do not result in the republishing of the FIS Report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood-hazard data (shown in Table 31, “Map Repositories”).

6.5.1 Letters of Map Amendment

A LOMA is an official revision by letter to an effective NFIP map. A LOMA results from an administrative process that involves the review of scientific or technical data submitted by the

owner or lessee of property who believes the property has incorrectly been included in a designated SFHA. A LOMA amends the currently effective FEMA map and establishes that a specific property is not located in a SFHA. A LOMA cannot be issued for properties located on the PFD (primary frontal dune).

To obtain an application for a LOMA, visit www.fema.gov/floodplain-management/letter-map-amendment-loma and download the form “MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill”. Visit the “Flood Map-Related Fees” section to determine the cost, if any, of applying for a LOMA.

FEMA offers a tutorial on how to apply for a LOMA. The LOMA Tutorial Series can be accessed at www.fema.gov/online-tutorials.

For more information about how to apply for a LOMA, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627).

6.5.2 Letters of Map Revision Based on Fill

A LOMR-F is an official revision by letter to an effective NFIP map. A LOMR-F states FEMA’s determination concerning whether a structure or parcel has been elevated on fill above the base flood elevation and is, therefore, excluded from the SFHA.

Information about obtaining an application for a LOMR-F can be obtained in the same manner as that for a LOMA, by visiting www.fema.gov/floodplain-management/letter-map-amendment-loma for the “MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill” or by calling the FEMA Map Information eXchange, toll free, at 1-877-FEMA MAP (1-877-336-2627). Fees for applying for a LOMR-F, if any, are listed in the “Flood Map-Related Fees” section.

A tutorial for LOMR-F is available at www.fema.gov/online-tutorials.

6.5.3 Letters of Map Revision

A LOMR is an official revision to the currently effective FEMA map. It is used to change flood zones, floodplain and floodway delineations, flood elevations and planimetric features. All requests for LOMRs should be made to FEMA through the chief executive officer of the community, since it is the community that must adopt any changes and revisions to the map. If the request for a LOMR is not submitted through the chief executive officer of the community, evidence must be submitted that the community has been notified of the request.

To obtain an application for a LOMR, visit www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/mt-2-application-forms-and-instructions and download the form “MT-2 Application Forms and Instructions for Conditional Letters of Map Revision and Letters of Map Revision”. Visit the “Flood Map-Related Fees” section to determine the cost of applying for a LOMR. For more information about how to apply for a LOMR, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627) to speak to a Map Specialist.

Previously issued mappable LOMCs (including LOMRs) that have been incorporated into the Christian County FIRM are listed in Table 27.

Table 27: Incorporated Letters of Map Change

Case Number	Effective Date	Flooding Source	FIRM Panel(s)
13-04-5407P	1/31/2014	Westwood Sinkhole	21047C0244D

6.5.4 Physical Map Revisions

PMRs are an official republication of a community's NFIP map to effect changes to base flood elevations, floodplain boundary delineations, regulatory floodways and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in additional flood hazard areas or correction to base flood elevations or SFHAs.

The community's chief executive officer must submit scientific and technical data to FEMA to support the request for a PMR. The data will be analyzed and the map will be revised if warranted. The community is provided with copies of the revised information and is afforded a review period. When the base flood elevations are changed, a 90-day appeal period is provided. A 6-month adoption period for formal approval of the revised map(s) is also provided.

For more information about the PMR process, please visit <http://www.fema.gov> and visit the "Flood Map Revision Processes" section.

6.5.5 Contracted Restudies

The NFIP provides for a periodic review and restudy of flood hazards within a given community. FEMA accomplishes this through a national watershed-based mapping needs assessment strategy, known as the Coordinated Needs Management Strategy (CNMS). The CNMS is used by FEMA to assign priorities and allocate funding for new flood hazard analyses used to update the FIS Report and FIRM. The goal of CNMS is to define the validity of the engineering study data within a mapped inventory. The CNMS is used to track the assessment process, document engineering gaps and their resolution, and aid in prioritization for using flood risk as a key factor for areas identified for flood map updates. Visit www.fema.gov to learn more about the CNMS or contact the FEMA Regional Office listed in Section 8 of this FIS Report.

6.5.6 Community Map History

The current FIRM presents flooding information for the entire geographic area of Christian County. Previously, separate FIRMs, Flood Hazard Boundary Maps (FHBMs) and/or Flood Boundary and Floodway Maps (FBFMs) may have been prepared for the incorporated communities and the unincorporated areas in the county that had identified SFHAs. Current and historical data relating to the maps prepared for the project area are presented in Table 28, "Community Map History." A description of each of the column headings and the source of the date is also listed below.

- *Community Name* includes communities falling within the geographic area shown on the FIRM, including those that fall on the boundary line, nonparticipating communities, and communities with maps that have been rescinded. Communities with No Special Flood Hazards are indicated by a footnote. If all maps (FHBM, FBFM, and FIRM) were rescinded for a community, it is not listed in this table unless SFHAs have been identified in this community.

- *Initial Identification Date (First NFIP Map Published)* is the date of the first NFIP map that identified flood hazards in the community. If the FHBM has been converted to a FIRM, the initial FHBM date is shown. If the community has never been mapped, the upcoming effective date or “pending” (for Preliminary FIS Reports) is shown. If the community is listed in Table 28 but not identified on the map, the community is treated as if it were unmapped.
- *Initial FHBM Effective Date* is the effective date of the first Flood Hazard Boundary Map (FHBM). This date may be the same date as the Initial NFIP Map Date.
- *FHBM Revision Date(s)* is the date(s) that the FHBM was revised, if applicable.
- *Initial FIRM Effective Date* is the date of the first effective FIRM for the community. This is the first effective date that is shown on the FIRM panel.
- *FIRM Revision Date(s)* is the date(s) the FIRM was revised, if applicable. This is the revised date that is shown on the FIRM panel, if applicable. As countywide studies are completed or revised, each community listed should have its FIRM dates updated accordingly to reflect the date of the countywide study. Once the FIRMs exist in countywide format, as Physical Map Revisions (PMR) of FIRM panels within the county are completed, the FIRM Revision Dates in the table for each community affected by the PMR are updated with the date of the PMR, even if the PMR did not revise all the panels within that community.

The initial effective date for the Christian County FIRMs in countywide format was 09/17/2008.

Table 28: Community Map History

Community Name	Initial Identification Date (First NFIP Map Published)	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
Christian County (Unincorporated Areas)	06/24/1977	06/24/1977	None	11/01/1997	9/17/2008
Crofton, City of ^{1,2}	9/17/2008	None	None	9/17/2008	None
Hopkinsville, City of	02/01/1974	02/01/1974	12/19/1975	09/05/1979	9/17/2008
Lafayette, City of ²	9/17/2008	None	None	9/17/2008	None
Oak Grove, City of ²	9/17/2008	None	None	9/17/2008	None
Pembroke, City of ²	9/17/2008	None	None	9/17/2008	None

¹ No Special Flood Hazard Areas Identified

² This community did not have a FIRM prior to the first countywide FIRM for Christian County

SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION

7.1 Contracted Studies

Table 29 provides a summary of the contracted studies, by flooding source, that are included in this FIS Report.

Table 29: Summary of Contracted Studies Included in this FIS Report

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Lake Morris Tributary 2, Lake Morris Tributary 2.1, Lower Branch North Fork Little River, Lower Branch North Fork Little River Tributary 2, Middle Branch North Fork Little River, Middle Branch North Fork Little River Tributary 2, North Fork Little River, North Fork Little River Tributary 3, Sink Connect 3, South Fork Little River, South Fork Little River Tributary 3, South Fork Little River Tributary 4, South Fork Little River Tributary 5, South Fork Little River Tributary 6.1, South Fork Little River Tributary 7, South Fork Little River Tributary 9, South Fork Little River Tributary 10, South Fork Little River Tributary 10.1, South Fork Little River Tributary 11, Upper Branch North Fork Little River, Warrens Fork, White Creek, White Creek Tributary 1, and Approximate Studies within Lower Cumberland Watershed	88/88/8888	AECOM*	EMA-2013-CA-5355	May 2015	Christian County Unincorporated Areas and City of Hopkinsville
Little River, Montgomery Branch, North Fork Little River, North Fork Little River Tributary, Rock Bridge Branch, Sanderson Creek, Sinkholes in Christian County, South Fork Little River, South Fork Little River Tributary, and White Creek and Approximate Studies within HUCs 05130206, 05140205, and 05110006	09/17/2008	AMEC Earth & Environmental, Inc.	EMA-2005-CA-5212	December 2006	Christian County Unincorporated Areas; Hopkinsville, City of; Lafayette, City of; Oak Grove, City of; Pembroke, City of

* As of January 2015, URS Corporation is AECOM

7.2 Community Meetings

The dates of the community meetings held for this FIS project and any previous FIS projects are shown in Table 30. These meetings may have previously been referred to by a variety of names (Community Coordination Officer (CCO), Scoping, Discovery, etc.), but all meetings represent opportunities for FEMA, community officials, study contractors, and other invited guests to discuss the planning for and results of the project.

Table 30: Community Meetings

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Christian County and Incorporated Areas	09/17/2008	03/15/2005	Initial CCO	Christian County Planning Staff, the City of Hopkinsville, the City of Oak Grove and their consultant, USACE Nashville District, AMEC Earth & Environmental Inc., KDOW, the National Service Provider (NSP), Michael Baker Corporation, and FEMA.
		03/30/2007	Final CCO	Christian County Planning Staff, the City of Hopkinsville, the City of Oak Grove and their consultant, USACE Nashville District, AMEC Earth & Environmental Inc., KDOW, the National Service Provider (NSP), Michael Baker Corporation, and FEMA.
Christian County and Incorporated Areas	88/88/8888	9/18/2013	Discovery	FEMA, KDOW, AECOM, Stantec Consulting Inc., Christian County, City of Hopkinsville
		7/13/2016, 7/14/2016	Flood Risk Review Meeting	FEMA, KDOW, AECOM, Stantec Consulting Inc., Caldwell County, City of Princeton, Christian County, City of Hopkinsville, Crittenden County, Trigg County
		TBD	Resilience	TBD
		TBD	CCO Open House	TBD

SECTION 8.0 – ADDITIONAL INFORMATION

Information concerning the pertinent data used in the preparation of this FIS Report can be obtained by submitting an order with any required payment to the FEMA Engineering Library. For more information on this process, see <http://www.fema.gov>.

Table 31 is a list of the locations where FIRMs for Christian County can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

Table 31: Map Repositories

Community	Address	City	State	Zip Code
Christian County (Unincorporated Areas)	Hopkinsville Christian County Planning Commission 101 N Main St.	Hopkinsville	KY	42241
Crofton, City of ¹	Hopkinsville Christian County Planning Commission 101 N Main St.	Hopkinsville	KY	42241
Hopkinsville, City of	Hopkinsville Christian County Planning Commission 101 N Main St.	Hopkinsville	KY	42241
Lafayette, City of	Hopkinsville Christian County Planning Commission 101 N Main St.	Hopkinsville	KY	42241
Oak Grove, City of	Oak Grove Kentucky City Hall 8505 Pembroke Oak Grove Rd.	Oak Grove	KY	42262
Pembroke, City of	Hopkinsville Christian County Planning Commission 101 N Main St.	Hopkinsville	KY	42241

¹ No Special Flood Hazard Areas Identified

The National Flood Hazard Layer (NFHL) dataset is a compilation of effective FIRM databases and LOMCs. Together they create a GIS data layer for a State or Territory. The NFHL is updated as studies become effective and extracts are made available to the public monthly. NFHL data can be viewed or ordered from the website shown in Table 32.

Table 32 contains useful contact information regarding the FIS Report, the FIRM, and other relevant flood hazard and GIS data. In addition, information about the state NFIP Coordinator and GIS Coordinator is shown in this table. At the request of FEMA, each Governor has designated an agency of State or territorial government to coordinate that State's or territory's NFIP activities. These agencies often assist communities in developing and adopting necessary floodplain management measures. State GIS Coordinators are knowledgeable about the availability and location of state and local GIS data in their state.

Table 32: Additional Information

FEMA and the NFIP	
FEMA and FEMA Engineering Library website	www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/engineering-library
NFIP website	http://www.fema.gov/national-flood-insurance-program
NFHL Dataset	http://msc.fema.gov
FEMA Region IV	Federal Regional Office, 3003 Chamblee Tucker Rd, Atlanta, GA 30341 (770) 220-5200
Other Federal Agencies	
USGS website	http://www.usgs.gov
Hydraulic Engineering Center website	http://www.hec.usace.army.mil
State Agencies and Organizations	
State NFIP Coordinator	Alex J. VanPelt Environmental Scientist IV Floodplain Management Branch Kentucky Division of Water 300 Sower Boulevard, 3rd Floor Frankfort, KY 40601 (502) 564-3410 alex.vanpelt@ky.gov
State GIS Coordinator	Kent Anness Kentucky Division of Geographic Information 100 Fair Oaks Frankfort, KY 40601 (502) 564-6268 kent.anness@ky.gov
Statewide Regulatory Coordinator	Carey Johnson Coordinating Technical Program Manager Kentucky Division of Water 300 Sower Boulevard, 3rd Floor Frankfort, KY 40601 (502) 564-3410 Carey.Johnson@ky.gov

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

Table 33 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

Table 33: Bibliography and References

Citation in this FIS	Publisher/ Issuer	Publication Title, "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
ACWI 2005	Advisory Committee on Water Information	"Bulletin 17-B Guidelines for Determining Flood Flow Frequency: Frequently Asked Questions."	Subcommittee on Hydrology: Hydrologic Frequency Analysis Work Group		2005	
EPA	Environmental Protection Agency	"Surf Your Watershed."	Office of Water	Washington, D.C.		http://cfpub.epa.gov/surf/locate/index.cfm
FEMA 2008	Federal Emergency Management Agency	Flood Insurance Study for Christian County, Kentucky and Incorporated Areas (FIS #21047CV000A)		Washington, D.C.	September 17, 2008	
KGS	Kentucky Geological Survey	"Geology of Kentucky, The Mississippian Plateau or Pennyroyal Region"	University of Kentucky	Lexington, Kentucky		http://www.uky.edu/KGS/geoky/regionPennyroyal.html
USACE 1972	U.S. Army Corps of Engineers	"TP-39: A Method for Analyzing Effects of Dam Failures in Design Studies."	USACE Hydrologic Engineering Center	Davis, CA	1972	
USGS 1982	U.S. Geological Survey	"Guidelines for Determining Flood Flow Frequency, Bulletin 17-B of the Hydrology Subcommittee."	U.S. Interagency Advisory Committee on Water Data	Reston, VI	1982	
USGS 2003	U.S. Geological Survey	"Estimating the Magnitude of Peak Flows for Streams in Kentucky for Selected Recurrence Intervals." Water Resources Investigations Report 03-4180, 68 p.	Hodgkins, G.A. and Martin, G.R.		2003	

Table 33: Bibliography and References

Citation in this FIS	Publisher/ Issuer	<i>Publication Title</i> , "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
USGS 2013	U.S. Geological Survey Scientific investigations	"Flood-Inundation Maps for an 8.9-Mile Reach of the South Fork Little River at Hopkinsville, Kentucky."	Lant, J. G.		2013	

